EASTERN RAILWAY
(Personnel Department)

Serial Circular No. 28/2024

No. M&E/Training/ALP/Additional

Kolkata, dated the 26th March 2024

**All Concerned**
(As per standard list)

Sub: Revised Training Modules for Loco Pilots and Assistant Loco Pilots Cadre.

A copy of Ministry of Railways (Railway Board) letter bearing No. E(MPP)/2023/03/41 dated 07.03.2024 (RBE No. 23/2024) on the above cited subject is circulated herewith along with its enclosures for information and further necessary action.

D.A.: As above.

(J.P. Biswas)
Assistant Personnel Officer (Co-Ordn.)
*for* Principal Chief Personnel Officer

RBE No. 23/2024

भारत सरकार Government of India
रेल मंत्रालय Ministry of Railways
(रेलवे बोर्ड) (Railway Board)

**No. E (MPP)/2023/03/41** **New Delhi, dated: 7.03.2024**

**The General Manager,**
**All Zonal Railways/PUs**
**Metro Railway, Kolkata**
**CORE, Allahabad**
**DG/RDSO/Lucknow**
**CAO/DMW/ Patiala**
**CAO/COFMOW/New Delhi**
**ED/CAMTECH/Gwalior**
**DG/NAIR/Vadodara**
**DG/IRITM/Lucknow**
**DG/IRIEEN/Nasik**
**DG/IRICEN/Pune**
**DG/IRISET/Secunderabad**
**DG/IRIMEE/Jamalpur**
**DG/ IRIFM/ Secunderabad**
**DG/ JRRPF/ Lucknow**

**Sub: Revised Training Modules for Loco Pilots and Assistant Loco Pilots Cadre.**

The existing training modules for Loco Pilots (LPs)/Assistant Loco Pilots (ALPs) cadre have been reviewed in the Board's office in view of the changing technological environment, and taking Safety of passengers' into account. The revised training modules, enclosed as Annexure, have been approved by Board (Member/T&RS).

2. It may be noted that the revised training modules for LP/ALP Cadre have been formulated after undertaking a holistic review of all the existing training modules for LPs/ALPs. Hence, this comprehensive set of revised training modules may only be referred to for training of LP/ALP cadre, and this will supersede all existing training modules for LP/ALP cadre issued earlier.

3. Accordingly, the revised training modules for Loco Pilot/ALP cadre have been scanned and uploaded under **MPP Training Circulars** and can be viewed or downloaded from **Railnet/Indian Railways website.**

4. Kindly acknowledge receipt.

**Encl. : (Revised Training Modules: 96 Pages)**

6/3/24

**(Amit Singh Mehra)**
**Director/Man Power Planning**

**No. E (MPP)/2023/03/41** **New Delhi, dated: 7.03.2024**

Copy to:

1) The General Secretary, NFIR, 3 Chelmsford Road, New Delhi for information (Copy may be downloaded from E(MPP) Training Circulars/Railnet/Internet).

2) The General Secretary, AIRF, 4 State Entry Road, New Delhi for information (Copy may be downloaded from E(MPP) Training Circulars/Railnet/Internet).

3) The Secretary General, FROA, R.No.256-A, Rail Bhavan, New Delhi for information (Copy may be downloaded from E(MPP) Training Circulars/Railnet/Internet).

4) The Secretary General, IRPOF, R.No.268, Rail Bhavan, New Delhi for information (Copy may be downloaded from E(MPP) Training Circulars/Railnet/Internet).

5) All Members, Department Council & Secretary Staff side National Council 13-C, Ferozeshah Road, New Delhi (Copy may be downloaded from E(MPP) Training Circulars/Railnet/Internet).

6) The Secretary General, AIRPF Association, Room No.256-D, Rail Bhavan, New Delhi (Copy may be downloaded from E(MPP) Training Circulars/Railnet/Internet).

7) General Secretary, All India SC & ST Railway Employees Association, 171/B-3, Basant Lane Railway Colony, New Delhi (Copy may be downloaded from E(MPP) Training Circulars/Railnet/Internet).

**For Principal Executive Director (IR) /Railway Board**

**No. E (MPP)/2023/03/41** **New Delhi, dated: 7.03.2024**

Copy to:

i) PS & ED(PG) to MR, MoSR (D) & MoSR (J)

ii) PSO/Sr.PPS to CRB, MF, M(Infra.), M(TRS), M(O&BD), DG(HR), DG(RHS) & DG(RPF)

iii) Sr.PPS/PPS/PS to AM(Budget), AM(CE), AM(C&IS), AM(Comml.), AM(Traction), AM(Fin), AM(Mech.), AM(Plg.), AM(Project), AM(PU), AM(Sig.), AM(Staff), AM(RS), AM(T&C), AM(Tele), AM(TT), AM(Works), PED(Vig.), PED(Safety), PED(Coaching) LA,

iv) ED(Plg.), ED(Accts.), EDCE(B&S), EDCE(G), EDCE(Plg.), ED(CHG), ED(CC), ED(C&IS), ED(E&R), EDEE(Dev), EDEE(G), EDE, ED(RRB), EDE(N), EDE(Res), EDF, EDF(B), EDF(X)I, EDF(X)II, ED(H), JS(C), EDME(Chg.), EDME(Fr.), ED(PC)I, ED(PC)II, EDRE, ED(Safety), ED(Safety)-II, IG./RPF(Hqs), ED(Sig.), ED(SP), EDRS(G), EDRS(S), ED(TD), EDTC(R), EDCE(P), ED(PM), ED(FM), EDPG, EDTT(F), EDTT(S), EDV(E), EDV(Elect), EDV(T), EDVE(S), ED(W).

v) Chief Commissioner of Railway Safety, Lucknow.

vi) E(Trg.), E(NG)I, E(NG)II, E(G), F(E)I, F(E)II, F(E)III, E(SCT)I, E(SCT)II branches of Railway Board.

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**ANNEXURE**

**Assistant Loco Pilot Induction Training Course – Electric Traction**

**Course Code - AIM**

| Sn. | Training Content | Duration ( in days ) | |
|---|---|---|---|
| | | Class Trg. | Field Trg. |
| **AIM-1** | **Orientation Module** | 1 | |
| | Organizational structure of IR | | |
| | Comprehensive presentation on the independent role of ALP | | |
| **AIM-2** | **Lobby Module** | 0.25 | |
| | General Description of Lobby working | | |
| | Procedure of Sign-On & Sign-Off through CMS kiosk, Breathalyzer test | | |
| **AIM-3** | **Running Room Module** | 0.25 | |
| | Overview of Running Room functioning | | |
| | Brief on rest rules and importance of it in life of running staff | | |
| **AIM-4** | **Yard Module -** Yard & Yard Master office | 0.5 | |
| | Overview of Yard layout & functions | | |
| | Learning road procedure in yards | | |
| **AIM-5** | **Station Module -** Station and SM office | 0.5 | |
| | Brief description of duties performed by SM/ASM & importance of Signal exchange by station staff | | |
| | Overview on Grant of block - Traffic and OHE, means of communication & tools available at stations | | |
| | ***Field visit on the above modules*** | | 2 |
| **AIM-6** | **Driving Module - Initial** | 4 | |
| | Familiarization with cab & apparatus there in | | |
| | Loco log book | | |
| | Signal call out | | |
| | Duties of ALP | | |
| | **Footplate / Field training as Co-ALP** | | 3 |
| | **Exam ( AIM 1 - 6 )** | 0.5 | |
| | | | |
| **AIM-7** | **Loco Module** | | |
| | Basic circuitry concept | 1 | |
| | Under Frame | 4 | 1 |
| | Machine Room & panels | 3 | 1 |
| | **Footplate / Field training as Co-ALP** | | 4 |
| | Locomotive Roof | 1 | 1 |
| | Pneumatic Module incl. testing | 3 | 2 |
| | **Footplate / Field training as Co-ALP** | | 4 |
| | **Exam – ( AIM - 7 )** | 0.5 | |
| | | | |
| **AIM-8** | **Driving Module – Advance** | 10 | |

| | | | |
|---|---|---|---|
| | Precautions & inspections of loco | | |
| | Loco energizing de-energizing procedure / sequence | | |
| | Stabling of loco | | |
| | Grounding & un-grounding procedure | | |
| | Cab changing procedure | | |
| | **Footplate / Field training as Co-ALP** | | 4 |
| | Knowledge of safety equipment | | |
| | Description of Flasher light | | |
| | Attaching & detaching locomotive | | |
| | MU operation and cab changing procedure | | |
| | **Footplate / Field training as Co-ALP** | | 4 |
| | **Exam – ( AIM 8 )** | 0.5 | |
| | | | |
| **AIM 9** | **Transportation Module -** Transportation, First Aid, Fire Fighting | 24 | |
| | **Exam – ( AIM 9 )** | | |
| | | | |
| **AIM-10** | **C&W and Air Brake Module** & overview of EMU/ MEMU, Vande Bharat type train set, Push-Pull etc. | 2 | |
| **AIM-11** | **TrD Module** | 1 | |
| **AIM-12** | **Control Office Module (TLC, TPC & Section Controller)** | 1 | 1 |
| | **Exam (AIM 10-12)** | 0.5 | |
| | | | |
| **AIM-13** | **Safety Module – Duties / Role of ALP** | 4 | |
| | Derailment, collision, Fire, etc | | |
| | Train protection and opposite line protection | | |
| | Train operation during fog / poor visibility | | |
| | OHE hanging / OHE breakdown | | |
| | Axle seizure / hot axle, etc | | |
| | **Footplate / Field training as Co-ALP** | | 4 |
| | | | |
| **AIM-14** | **Loco Operation Module** | 4 | |
| | Action in case of trouble / failure of loco with the help of TSD or helpline | | |
| | Lookout on signal, track, OHE & adjacent line, Tress passers etc. | | |
| | EEC & GR manual operation in Conventional loco. | | |
| | VCD act on line | | |
| | Operation of PTDC in three phase locomotives | | |
| | Working from rear cab | | |
| | **Footplate / Field training as Co-ALP** | | 4 |
| | | | |
| **AIM-15** | **Train Operation Module** | 3 | |
| | Detection of flat wheel /hot axle in loco / train | | |
| | Train stalled on gradient section & precautions to avoid rolling down | | |
| | In case of FIBA, VESDA, etc act on line | | |

| | | | |
|---|---|---|---|
| | Train working in case of failure of air suspension spring | | |
| | Hose pipe disconnection | | |
| | Miscellaneous failures in train/ wagons | | |
| | **Footplate / Field training as Co-ALP** | | 4 |
| | **Exam (AIM 13-15)** | 0.5 | |
| | | | |
| **AIM-16** | **Learning Road Module** | 1 | |
| | Importance of quality Road learning | | |
| | Methodology of quality LR - marking of features of sections like critical locations, signal, gradient, etc | | |
| | Sketching of critical yard and multiple line stations. | | |
| **AIM-17** | **Simulator and Tripping car Module** | 3 | |
| | Practical training of ALP on simulator including application of emergency brake by trainee ALP through RS valve | | |
| | Manual operation of GR & EEC in conventional loco tripping car | | |
| | **Footplate / Field training as Co-ALP** | | 4 |
| **AIM -18** | **Case Studies Module** | 3 | |
| | Case studies linked with various above modules | | |
| | **Final Exam covering all modules** | 1 | |
| | **Total Days** | 78 | 42 |
| | **Grand Total Days** | **120** | |

**AIM-1**

**DESCRIPTION**
**Orientation Module**

**DURATION**
**1 day**

**CONTENTS**

| S.no. | Subject | Duration in days |
|---|---|---|
| 1. | Welcome address & brief on organizational structure of Indian Railways, brief on departments & role. | **1 Day** |
| 2. | Comprehensive presentation on the independent role of ALP in safe train operation& brief description of ACTM and relevant rules applicable to ALP like Cleanliness of Loco, lookout glass cleaning, ALP shall assist the LP, to obey the lawful order of LP, etc. | |
| 3. | Precaution/rules to be followed in electrified zone/electric locomotive<br>• Safety precautions related to 25kV OHE<br>• Safety precautions during corridor / machine room inspection on moving loco | |
| 4. | Role of punctuality in life of running staff | |
| 5. | Appearance and proper uniform. | |
| 6. | Safety precaution during field training shed visit, riding on loco, crossing of railway track. | |

**AIM-2**

**DESCRIPTION**
**Lobby Module**

**DURATION**
**¼ day**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | General Description of Lobby working | ¼ day |
| 2. | Procedure of Sign-On & Sign-Off through CMS kiosk | |
| 3. | Breathalyzer test & its importance (Dos/Don’ts related to consumption of alcohol) | |
| 4. | Overview of Registers & notices/safety bulleting kept in lobbies | |
| 5. | Booking pattern of ALPs on freight trains (FIFO, booking after availing leaves, after PR, etc.) | |
| 6. | Serving of call book | |
| 7. | Leave sanctioning procedure by Sr.CC/CC | |
| 8. | Brief overview of IT tools like HRMS, CMS etc. | |
| 9. | Chalak Dal App and Usage. | |

**AIM-3**

**DESCRIPTION**
**Running Room Module**

**DURATION**
**¼ day**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Overview of Running Room functioning | ¼ day |
| 2. | Exposure on common facilities available in Running Rooms | |
| 3. | Brief on rest rules and importance of it in life of running staff | |
| 4. | Overview of subsidized meal system in running rooms, system of meal where subsidized meal is not available. | |
| 5. | Dos & don’ts during stay in running room | |
| 6. | Switching off of mobile during rest period in running room | |
| 7. | Procedure of call book serving in running room | |
| 8. | Reporting for duty at out station lobby well in before schedule departure of train (mentioned in call book) | |

**AIM-4**

**DESCRIPTION**
**Yard Module –** Yard & yard Master’s office visit incl. LR on foot procedure in yards

**DURATION**
**½ day**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Overview of Yard layout | ½ day |
| 2. | Brief on of yard operations: use of switches (turnouts) to direct trains to the appropriate tracks for sorting, classification, or departure. | |
| 3. | Communicating with train crews, including Train Managers (Guard), to ensure a smooth departure and arrival of trains. | |
| 4. | Managing signals within the yard to control the movement of trains and ensure safety during shunting and marshalling. | |
| 5. | Dispatching trains from the yard, coordinating with other yard masters, section controllers, and higher authorities. | |
| 6. | Learning road procedure in yards : On foot LR to conversant with yard signals, crossings, points, | |

| Sno. | Subject | Duration in days |
|---|---|---|
| | washing line, pit line, wired/unwired lines, etc. | |

**AIM-5**

**DESCRIPTION** **DURATION**

**Station Module**–Station & SM/ASM office visit **½ day**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Brief description of duties performed by SM/ASM | **½ day** |
| 2. | Importance of Signal exchange by station staff with passing trains. | |
| 3. | Communicating with section controller to coordinate train movements. | |
| 4. | Line clear obtaining / granting procedure as per system of working. | |
| 5. | Departure/Arrival of trains from/to the station in accordance with the schedule and safety protocols. | |
| 6. | Managing and controlling signals at the station to facilitate safe train movements on the assigned tracks. | |
| 7. | Responding to emergencies, accidents, or incidents at the station and coordinating with relevant authorities for assistance. | |
| 8. | Facilitating the changeover of train crews at the station. | |
| 9. | Brief description on means of communications available in SM's office/cabin like Control phone, TLC/TPC phone, P&T phone, VHF set, walkie-talkie, etc. | |
| 10. | Tolls available with ASM/SM for securing the loads like chains, sprag & wedges, padlocks, clamps etc, | |
| 11. | Registers like stabling register, train intactness register etc | |
| 12. | Overview on Grant of block - Traffic and OHE | |
| 13. | Role of statin staff like Porter/Points men and their duties during train passing and signal exchanging with train crew, stabling of load, etc. | |
| 14. | General description of responsibility of Technician Signal (ESM), relay room, panel etc. | |
| 15. | Brief overview of Data logger. | |

**DURATION**

**Field Visit on above modules** **2days**

**DESCRIPTION**
**Driving Module - Initial**

**DURATION**
**4 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Familiarization with layout of loco cabs of three phase & conventional locomotives (incl. WAG12) | **4days** |
| 2. | Knowledge of A9/SA9 brake valves, Horn, wiper, other apparatus in cab | |
| 3. | Knowledge of various equipment like Headlight, Flasher light, Marker light, gauges & meters in cab, etc and their functions. | |
| 4. | Location of handbrake / parking brake and its operation | |
| 5. | RS valve (emergency brake valve) | |
| 6. | Familiarization with Loco log book & Loco Pilot's pocket diary | |
| 7. | Duties of ALP w.r.t. signals | |
| 8. | Importance of Signal call out and procedure (Demonstration of procedure of call out signal as per instructions laid down. This should be demonstrated by each trainee ALP multiple times) | |

**Footplate /Field training as Co-ALP**

**DURATION**
**3days**

Footplate /Field training as Co-ALP for overseeing the cab of various electric locomotives and functions of ALPs during normal train operation. Special emphasis should be given to procedure of signal call out by ALP.

***Exam***

**DURATION**
**½ day**

*Exam – (AIM-1 to AIM-6).*

**AIM-7**

**DESCRIPTION**
**Loco Module**

**DURATION**
**25days**
Incl.
Shed/field/Practical/
Footplate

## CONTENTS

**Loco Sub-Module – Basic Circuitry Concept** **1 Day**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | **Basic Circuitry Concept** | |
| 1.1 | Principle of electric locomotives - three phase & conventional electric locomotives (incl WAG12) | 1 Day |
| 1.2 | different electrical circuits of 3 Phase electric locomotives | |
| 1.3 | Brief description of different electrical circuits of conventional electric locomotives | |

**Loco Sub-Module – Under Frame** **5 Days**

| Sno. | Subject | Duration in days |
|---|---|---|
| 2. | **Loco Under Frame** | 4 days |
| 2.1 | Brief description on under frame safety fittings & intactness like cattle guard, rail guard, sand box & sander pipes, side buffers, CBC & TC coupling, axle box, battery box, other under gear equipment which needs to be checked on line, etc. | |
| 2.2 | Different parts of bogies of conventional & three phase locomotives which need to be checked for safety of locomotive. | |
| 2.3 | Location of different type of pneumatic valves, cocks, gauges and their normal positions | |
| 2.4 | Moisture draining locations, location of lubrication points, etc. | |
| 2.5 | Application of hand brake / parking brake and releasing. | |
| 2.6 | Location of wooden wedges and usage | |
| 2.7 | **Shed/field visit for location of equipment & practical training** | 1 day |

**Loco Sub-Module – Machine Room & panels** **4 Days**

| | | |
|---|---|---|
| 3. | **Machine Room & panels** | |
| 3.1 | Layout & location of equipment in corridors, machine room. | 3 days |
| 3.2 | Location of various pneumatic pressure switches which needs to check during trouble shooting. | |
| 3.3 | Brief description of relays, switches, MCB etc and their normal positions. | |
| 3.4 | Location and checking procedure of different oil levels like GR, transformer, traction converters, CP, coolant level of Traction converter etc. | |
| 3.5 | Location of fixed and portable fire extinguishers and their usages. | |
| 3.6 | **Shed / field visit for location of equipment & practical training** | 1 day |

**DURATION**

**Footplate /Field training as Co-ALP** **4 days**

Footplate /Field training as Co-ALP for overseeing the location and functions various locomotive equipment and action of ALPs during normal train operation.

**Loco Sub-Module – Roof** **2 Day**

| | | |
|---|---|---|
| 4. | **Roof Module** | |
| 4.1 | Brief description of loco roof equipment like pantograph, roof bars, HPT link, surge arrestor etc. | 1 day |
| 4.2 | Description of various equipment of pantograph. | |
| 4.3 | Knowledge of ORD in high reach pantograph | |
| 4.4 | Raising & lowering of pantograph | |
| 4.5 | **Shed/ Field visit for location of equipment & practical training** | 1 day |

**Loco Sub-Module – Pneumatic incl testing** **5Days**

| | | |
|---|---|---|
| 5. | **Pneumatic test & procedures** | |
| 5.1 | Basic principle of loco brake system | 3 days |
| 5.2 | Description of E-70 & CCB brake panel of three phase locomotives | |
| 5.3 | Function of A9 & SA9 valves and their different positions along with amount of pressure drop. | |
| 5.4 | Overview of PTDC procedure of three phase locomotive. | |
| 5.5 | Working of Compressor, MR buildup and creation of BP & FP. | |
| 5.6 | Application of brake through A9 & SA9 and releasing | |
| 5.7 | Procedure of BP leak test | |
| 5.8 | Procedure of FP leak test | |
| 5.9 | Procedure for leak test in train | |
| 5.10 | Description of continuity test and procedure | |
| 5.11 | Importance of brake feel test & brake power test and procedure | |
| 5.12 | Testing procedure of loco brake power & its importance in light engine operation. | |
| 5.13 | Function & use of BPEMS switch. | |
| 5.15 | Hose pipe connection/disconnection | |
| 5.16 | **Shed/field visit for location of equipment & practical training** | 2 days |

**Footplate /Field training as Co-ALP** **DURATION 4 days**

Footplate /Field training as Co-ALP for overseeing the location and functions various pneumatic equipment on loco and action of ALPs during normal train operation.

***Exam*** **DURATION ½ day**

**CONTENTS**

*Exam – (AIM-7).*

**AIM-8**

**DESCRIPTION**
**Driving Module - Advance**

**DURATION**
**18days**
Incl.
Shed/field/Practical/
Footplate

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| | **Part-I** | 5 days |
| 1. | Precautions & inspections of loco before taking over charge in yards, shed/outpit, etc. like ensuring loco standing online & under OHE, general inspection of loco under frame, etc. | |
| 2. | Description of Flasher light and its usage & checking procedure | |
| 3. | Loco energizing precautions, procedure/sequence | |
| 4. | Loco de-energizing procedure/sequence | |
| 5. | Stabling of loco (including securing of loco using hand brake, parking brake, wooden wedges, etc.). | |
| 6. | Inspection of loco at halts& crew changing points, inspection of axle boxes, under frame equipment and TM fixation and draining of MRs etc. | |
| 7. | Grounding & ungrounding procedure of three phase & conventional loco. | |
| 8. | Cab changing procedure | |

**Footplate /Field training as Co-ALP**

**DURATION**
**4 days**

Footplate /Field training as Co-ALP for overseeing the above procedures, tests and action of ALPs during normal train operation.

| Sno. | Subject | Duration in days |
|---|---|---|
| | **Part-II** | 5 days |
| 9. | Multiple loco operation and cab changing procedure | |
| 10. | Overview on operation of PTDC in three phase locomotive | |
| 11. | Attaching & detaching locomotive including coupling, hose pipe connection, and precaution before attaching on load | |
| 12. | Brake continuity test and its procedure | |
| 13. | Loco brake testing procedure | |
| 14. | Brief overview of long-haul / Python train & Push-Pull loco operation | |
| 15. | Overview of DPWCS, EOTT, etc. | |

| | | |
|---|---|---|
| 16. | Knowledge of safety equipment like VCD, KAVACH, RDAS, Fog Safe/Fog Pass device, etc. | |
| 17. | Operation of sanding gear and its importance | |
| 18. | Procedure of loco HT/LT testing | |

**Footplate /Field training as Co-ALP** **DURATION 4 days**

Footplate /Field training as Co-ALP for overseeing the above procedures, tests and action of ALPs during normal train operation.

***Exam*** **DURATION ½ day**

**CONTENTS**

*Exam – (AIM-8).*

**AIM-9**

**DESCRIPTION** **DURATION**
**Transportation Module** **24 days**
**Transportation, First Aid,**
**Fire Fighting** (incl. Exam)

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Important definitions such as Adequate Distance, Block Section, Isolation, Faulting mark, Running Line, Axle counter, Station section. Authority to proceed and Station working rules, Light engine, Relief Engine, Banking Engine, Train Engine, Shunting Engine, etc | 24 days |
| 2. | Personal equipment of ALP | |
| 3. | Stations<br>• Kinds and classification of stations minimum essential signals etc. for each station.<br>• Block and non-Block stations.<br>• Block overlap.<br>• Yard Layout, etc. | |
| 4. | System of working –<br>• Absolute Block System<br>• Automatic Block System,<br>• Train following System, etc | |
| 5. | Signals –<br>• Necessity and Evaluation of signals,<br>• classification and kinds of signals,<br>• Approach and Departure signals permissive signals, subsidiary signals, etc. | |
| 6. | Defective signals<br>• Defective signal, Automatic signals, Semi- | |

| Sno. | Subject | Duration in days |
|---|---|---|
| | automatic and Gate signals, manual signals.<br>• Action and rules for passing defective signals of different types.<br>• Practical tour for sight in Yard. | |
| 7. | Engineering signals –<br>• Engineering Signals. Their placement.<br>• Permanent and Temporary Engineering Cautions.<br>• Brief of Ghats Section.<br>• Speeds. | |
| 8. | Isolation | |
| 9. | Different authorities/forms | |
| 10. | Working of trains<br>• When Headlight is failed.<br>• When a train is received on Blocked line or to be started from a Non-Signal/Non running line without brake van or without guard.<br>• Departure from non-signaled line<br>• When train has a hot axle.<br>• Having ODC<br>• Train formed from a non-TXR point, etc.<br>• Caution order<br>• Authorized persons in Cab<br>• Stopping on gradient | |
| 11. | Abnormal working –<br>• Rules for working of trains – single line working on Double line in absolute and automatic Block Sections.<br>• Total failure Communication.<br>• Rules for sending relief engine from right line and wrong line.<br>• Precautions to be observed during abnormal working in different cases. | |
| 12. | Shunting –<br>• Kinds of shunting.<br>• Precautions for safe and smooth shunting.<br>• Rules for shunting in Yard, coaching Yard and “B” class stations.<br>• Model Room training. | |
| 13. | Train operation in fog | |
| 14. | Protection Rules | |
| 15. | Exchange of Signal & its significance | |
| 16. | Accident –<br>• Duties of ALP in case of accident.<br>• Mid Section derailments. Engine failures etc.<br>• Over shooting<br>• Protection in block section in case of accidents.<br>• Use of detonators | |
| 17. | Duties in case of fire in train/loco. | |
| 18. | Identifying and handling of various types of fire extinguishers, precautions to be taken while extinguishing fire, Render first aid to the burn injuries, first aid to persons affected by suffocation, | |

| Sno. | Subject | Duration in days |
|---|---|---|
| | communication, etc. | |
| 19. | **Exam** | |

**AIM-10**

**DESCRIPTION**
**C&W and Air Brake Module & EMU/MEMU, Vande-Bharat type train set, Push-Pull, etc.**

**DURATION**
**2 days**

## CONTENTS

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Different types of Rolling stock - Nomenclature | 2 days |
| 2. | Air brake system - working method with diagrams, parts & functions, working single pipe and Twin pipe air brake system. Pneumatic brake - working principle, BMBS and APS, Hand brake in rolling stock. | |
| 3. | Brake power certificates - kinds - Coaching & Freight trains, percentage of brake power required in goods/mixed/passenger trains, Alarm chain pulling - resetting & isolation, FIBA, Fire Detection(VESDA), etc | |
| 4. | Continuity test, cases of brake binding and releasing, Flat wheel detection and action to be taken. | |
| 5. | LHB coach, Hybrid coach, conventional coach, Hot axle symptoms and action to be taken. | |
| 6. | Guard & Loco Pilot check - clearance from road side station/sidings/non-TXR points & brake power calculation | |
| 7. | Brake continuity test and its importance, isolation of distributor valve. | |
| 8. | Overview of EMU/MEMU, Vande-Bharat type train set, Push-Pull, etc. | |
| 9. | Train working without guard | |
| 10. | Discussion on Miscellaneous failures in trains / wagons | |

**AIM-11**

**DESCRIPTION**
**TrD Module**

**DURATION**
**1 day**

## CONTENTS

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Brief overview of OHE system | 1 day |
| 2. | Familiarization with OHE equipment for identification (including cantilever assembly) | |
| 3. | Electrical engineering boards | |
| 4. | Description & usage of neutral section related boards (500 meter board, 250 meter board, DJ open board, DJ close board). | |
| 5. | Duties of ALP during OHE Break Down. | |
| 6. | Precaution before passing neutral section and before resuming traction after passing neutral section | |
| 7. | Description of SIGMA board and its importance | |

**AIM-12**

**DESCRIPTION**
**Control Office Module**

**DURATION**
**2days**
Incl.
Shed/field/Practical/
Footplate

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | **Traction Control Office** | ½ day |
| 1.1 | Brief description on the role of Traction Control organizational structure | |
| 1.2 | Communication protocol for informing TLC regarding loco failure, abnormalities, etc. | |
| 1.3 | Exposure of related IT tools like ICMS, FOIS, etc. | |
| 1.4 | General knowledge of Booked speed, Max speed, sectional speed | |
| 1.5 | General knowledge of Crew link, loco link, etc. | |
| 1.6 | Maintaining various records regarding schedule inspection carried out, overdue, etc. | |
| 1.7 | Overview of the trip schedule of locomotives. | |
| 1.8 | Brief description on the role of Traction Power Controller & visit to SCADA control room | |
| 1.9 | Overview of RTIS equipment, usage and precautions. | |
| 2. | **Section Controller Office** | ½ day |
| 2.1 | Brief overview of Section Control office | |
| 2.2 | Brief description of duties/tasks performed by Section controllers w.r.t. train movement viz controlling the movement of trains within the assigned railway section, Monitoring and ensuring that trains adhere to their schedules, Communicating with Station Masters, making decisions on train priorities, overtaking, and other operational matters to ensure efficient and safe train operations, etc. | |
| 2.3 | Responding to emergencies such as accidents, breakdowns, or other incidents that may affect train operations and coordination with relevant authorities and initiating appropriate actions to address emergencies. | |
| 2.4 | Maintaining communication with train crews, station staff, and other relevant personnel to relay important information and instructions. | |

**Field visit**

**DURATION**
**1 day**

**CONTENTS**

Field Visit (under supervision of Training Instructor / CLI) of TLC office, TPC office, SCADA and Section Controller Office for overseeing the functions of the establishments.

***Exam*** **DURATION ½ day**

**CONTENTS**

*Exam – (AIM-10 – AIM-12).*

**AIM-13**

**DESCRIPTION**
**Safety Module – Duties/Role of ALP**

**DURATION**
**8days**
Incl. Shed/field/Practical/ Footplate

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Derailment, collision, etc | 4 days |
| 2. | Train protection and opposite line protection | |
| 3. | OHE hanging / OHE breakdown | |
| 4. | Axle seizure / hot axle | |
| 5. | Smoke from underslung equipment | |
| 6. | Operation during water on track or flood | |
| 7. | Obstructed track / land slide | |
| 8. | Train operation during fog/poor visibility | |
| 9. | In case of train parting | |
| 10. | Flasher light of opposite train glowing | |
| 11. | Panto entanglement and securing of broken pantograph & isolation of pantograph (through HPT link on loco roof) | |
| 12. | In case of loco entered in unwired territory | |
| 13. | Cattle Run Over (CRO) & inspection of loco after CRO | |
| 14. | Fire in train / locomotive | |
| 15. | Use of detonators & related duties | |

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**Footplate /Field training as Co-ALP** **DURATION 4days**

**AIM-14**

**DESCRIPTION**
**Locomotive Operation Module**

**DURATION**
**8days**
Incl.
Shed/field/Practical/
Footplate

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Sharp lookout on signal, track, OHE & adjacent line, Tress passers etc. | **4 days** |
| 2. | Reading of Trouble shooting directory of various three phase & conventional locomotives. | |
| 3. | EEC & GR manual operation in Conventional loco. | |
| 4. | Wedging of different type of relays & contactors in conventional locomotive | |
| 5. | Flasher light – its checking procedure & usage | |
| 6. | Precautions to be followed in case of any equipment of loco are isolated (as per TSD). | |
| 7. | VCD act on line | |
| 8. | Headlight not working | |
| 9. | Horn not working | |
| 10. | Speedometer not working | |
| 11. | BPEMS acted on line | |
| 12. | Operation of PTDC in three phase locomotive | |
| 13. | Throttle not responding | |
| 14. | Harmonic filter isolation | |
| 15. | MR not buildup | |
| 16. | BP/FP not creating | |
| 17. | BP not maintaining | |
| 18. | Working from rear cab | |
| 19. | Fire in locomotive | |
| 20. | Flat wheel in locomotives & precaution to avoid wheel skid, wheel slip & rail burn (Continuous wheel slip and use of sanders) | |
| 21. | Attaching dead locomotive in train and accompany by ALP. | |
| 22. | Communicating to TLC or other official regarding information of any abnormality and assistance required (protocol to be followed like train no., loco no., section, between stations, km no., nature of abnormality, assistance required, etc.) | |
| 23. | Action in case of trouble / failures of locomotives with the help of TSD or helpline | |

**Footplate /Field training as Co-ALP**

**DURATION**
**4days**

**AIM-15**

**DESCRIPTION**
**Train Operation Module**

**DURATION**
**8days**
Incl.
Shed/field/Practical/
Footplate

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Detection of flat wheel in loco train | **4days** |
| 2. | Train stalled on gradient section & precautions to avoid rolling down | |
| 3. | In case of FIBA, VESDA, etc act on line | |
| 4. | In case of Alarm Chain Pulling (ACP) in train | |
| 5. | Brake binding in coach/wagon | |
| 6. | Coach brake system isolation / pneumatically by pass | |
| 7. | Train working in case air suspension bellow ruptured/punctured | |
| 8. | Hot axle / fire in train | |
| 9. | Walkie-talkie not working | |
| 10. | Train working without Guard | |
| 11. | Overview of EOTT | |
| 12. | Hose pipe disconnection | |
| 13. | Procedure of GDR (TMLR) check and duties of ALP | |
| 14. | Punctuality of trains | |
| 15. | Knowledge of WTT | |
| 16. | Checking of coupling after attaching on load | |
| 17. | Guard's brake valve in brake van and how to use it | |
| 18. | All right exchange with guard at starting, curve, after passing temporary caution order, etc. | |
| 19. | Other issued related to train operation | |

**Footplate /Field training as Co-ALP**

**DURATION**
**4days**

***Exam***

**DURATION**
**½ day**

*Exam – (AIM-13 to AIM-15).*

**AIM-16**

**DESCRIPTION**
**Learning Road (LR) Module**

**DURATION**
**1 day**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Importance of quality Road learning (LR) in life of running staff for ensuring safety of trains. | 1 day |
| 2. | Methodology of quality LR in main line, station sections, yards, etc. | |
| 3. | Procedure for yard LR – on foot LR | |
| 4. | Marking of features of sections like critical locations, signal at right hand side, signals located in curvature, heavy gradient section, etc. | |
| 5. | Sketching of critical yard and multiple line stations. | |

**AIM-17**

**DESCRIPTION**
**Simulator & Tripping Car Module**

**DURATION**
**4day**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Simulator Training for application of emergency brake by trainee ALP through RS valve (each individual trainee ALP) | 4 days |
| 2. | Manual operation of GR & EEC in conventional loco tripping car (each individual trainee ALP)& Troubleshooting practice with help of TSD | |

**Footplate /Field training as Co-ALP**

**DURATION**
**3 days**

**AIM-18**

**DESCRIPTION** **DURATION**
**Case Studies Module** **3 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Discussion on issues noticed during footplate training | 3 days |
| 2. | **Case Studies** of various accidents and lessons linked with various above modules. (Particularly focusing on scenarios where prompt actions by ALPs could have averted the incidents or accidents.) | |
| 3. | Revision of important safety instructions, procedures, etc. | |
| 4. | Summarizing the importance and procedure of quality road learning to ensure safe train operation. | |
| 5. | Session on personal hygiene and importance of clean environment & stress management during any unusual. | |
| 6. | How to submit a memo to the section controller/TLC through SM/ASM for any information required to be brought to notice. | |
| 7. | Important dos & don’ts like switching off of mobile phone, not to use walkie-talkie for getting information of signal aspect from station staff, drunkenness on duty, etc. Any other topic deemed fit to be imparted to trainee ALPs. | |

**DESCRIPTION** **DURATION**
**Final Exam covering all modules** **1 day**

**Instruction for training centers& Instructors**

- During classroom training, it is preferable to use audio-visual aids with digital content.
- In-depth knowledge of various circuits, such as electrical and pneumatic circuits, etc is not required.
- The training should primarily emphasize the activities and responsibilities of the ALP in their day-to-day operations with locomotives/trains.

- During subject-specific classroom training, it is essential to emphasize discussions on safety cases, including SPAD, accidents, derailments, collisions, side collisions, and incidents involving entering unwired/sand humps. This emphasis should highlight how adherence to proper procedures or correct actions by the ALP on the subject could have effectively prevented such cases.
- For effective monitoring of footplate training by trainee Assistant Loco Pilots (ALPs), temporary IDs should be created in the CMS (CMS software may need modification). Subsequently, trainee ALPs should be scheduled as additional ALPs within the regular loco crew roster during normal train bookings.
- A minimum of 1000 kilometers of footplate experience is recommended.
- Proper records of footplate kilometers of individual trainee ALPs should be kept by the concerned training center. The record of footplate kilometers should also be maintained in CMS.
- To enhance understanding of the working system, it is suggested that during footplate training, trainee ALPs may be assigned to lobbies and booked as additional ALP with the regular set of crew (preferably on lobbies where they are expected to work upon completion of their training).
- After being assigned to the lobby, trainee ALPs may be directed to undergo footplate training as Co-ALP (with the regular set of loco crew) for completing at least two round trips in each section of the specific lobby (crew beat) and also stay in running room to the extent possible.
- Trainee ALPs may also be allowed to stay in running rooms so that they can gain footplate experience up to the full crew beat along with the train crew. This will also enable them to familiarize themselves with the running room system of working. (In the case of regular ALPs undergoing conversion training, this aspect is not required.)

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**ALP/LPs to LP (G) Promotional Training Course – Electric Traction**

**Course code– GPM**

| Module no. | Training Content | Duration in days |
|---|---|---|
| **GPM-1** | Loco module | 5 |
| **GPM-2** | Driving module | 6 |
| **GPM-3** | Safety module | 3 |
| **GPM-4** | Loco Operation module | 4 |
| **GPM-5** | Train Operation module | 3 |
| **GPM-6** | Loco Pneumatic module | 3 |
| **GPM-7** | Transportation module- Transportation, First Aid, Fire Fighting, etc. | 24 |
| **GPM-8** | C&W and Air Brake module& overview of EMU/MEMU, Vande Bharat type train set, Push-Pull etc. | 2 |
| **GPM-9** | TrD module | 1 |
| **GPM-10** | Simulator Training | 6 |
| | Final Exam | 1 |
| | **Total days** | **58** |

**Note -**After the completion of a 58-day training at Traction Training Centers, trainees shall be directed to their respective divisions for a 20-day 'Loco/Train Handling on Line,' as outlined in the Board's letter no. 2004/M(L)/466/7101 dated 31.08.2009.

**DESCRIPTION**
**Locomotive Module**

**DURATION**
**5 days**

## CONTENTS

| Sno. | Subject | Duration in days |
|---|---|---|
| 7. | Comprehensive presentation on the independent role of Loco Pilot in train operation. | 5 Days |
| 8. | General description of electric locomotive – Three phase & conventional locomotives (including microprocessor & SIV based locos) - Hauling capacities, Tractive effort, weight, axle load, hauling capacity, etc. | |
| 9. | Brief description on safety items - undergear safety fittings & intactness (cattle guard, rail guard, sand box & sander pipes, CBC & TSC coupling, axle box, battery box, other bogie/under gear equipment which needs to be checked on line, moisture draining locations, location of lubrication points, etc. | |
| 10. | Location and functions of various equipment of three phase & conventional locomotives | |
| 11. | Location and functions of various types of relays, switches, MCBs, fuses, and other electrical equipment, along with their normal positions, need to be regularly checked and operated during train operations | |
| 12. | Checking of stabled locomotive before energizing<br>Ensuring loco standing on line & under OHE, general inspection of loco under frame, ensuring various switches/MCBs are in normal position, checking level of all type of oil/coolants & ensure all levels are above 'MIN' mark, availability of fire extinguishers and wooden wedges, etc. | |
| 13. | Energizing, De-energizing & stabling of locomotive & cab changing procedure<br>• Loco energizing sequence/procedure for three phase & conventional locomotives.<br>• Cab changing procedure/sequence<br>• Loco de-energizing procedure/sequence and stabling of loco (including securing of loco using hand brake, parking brake, wooden wedges, etc). | |
| 14. | Description of A9 & SA9 brake valves and their different positions & respective amount BP drop | |
| 15. | • Application/releasing of loco brake, brake power testing procedure of locomotive<br>• Procedure for application/releasing of loco brake & testing of loco brake power of three phase & | |

| Sno. | Subject | Duration in days |
|---|---|---|
| | conventional locomotives | |
| 16. | Description and function of ZBAN, ZTEL, Hotel load& BHLO | |
| 17. | Function & use of BPEMS switch. | |
| 18. | Safety items to be checked while taking over charge of locomotives enroute, yard, stabled loco etc. | |
| 19. | • Model room demonstration | |

**GPM-2**

**DESCRIPTION** **DURATION**
**Driving Module** **6days**

## CONTENTS

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Methodology of quality Road Learning and its importance. | 6 days |
| 2. | Precaution before moving a locomotive – removing of wooden wedges, releasing of hand/brakes, duty with respect to signals, etc. | |
| 3. | Proper call out of signal with ALP<br>• Demonstration of procedure of call out signal as per instructions laid down<br>• This should be demonstrated by each LP multiple times. | |
| 4. | Precaution before attaching/detaching the locomotive on/from load | |
| 5. | Brake continuity, Brake feel & brake power test<br>• Procedure for carry out of brake continuity test and locations/situations where carry out.<br>• Importance of brake feel test & brake power for safety of trains.<br>• Procedure for carry out brake feel test & brake power test. | |
| 6. | Brake power certificates - kinds - Coaching & Freight trains, percentage of brake power required in goods/mixed/passenger trains, etc | |
| 7. | How to start train without jerk and gradual acceleration, deacceleration, etc. | |
| 8. | Observance of permissible speed, permanent & temporary speed restrictions, etc. | |
| 9. | Description of dynamic/regenerative braking procedure and its benefits. | |
| 10. | How to stop train on level, gradient, Controlling of train & coasting, energy conservation etc. | |
| 11. | Use of BPCS and precaution while using it. | |
| 12. | Effective on regenerative/dynamic braking of braking through A9/SA9 and no tension of OHE. | |
| 13. | Description of auto regression feature of | |

| Sno. | Subject | Duration in days |
|---|---|---|
| | locomotives especially in case of full service brake application and emergency brake application. | |
| 14. | MU, Double headed, Push-Pull loco operation | |
| 15. | Train operation in ghat sections | |
| 16. | Passing of neutral section – precaution before neutral section, actions after passing neutral section for resuming traction, etc. | |
| 17. | Precaution to be taken to avoid wheel slipping, wheel skidding, rain burning, train parting, etc. | |
| 18. | Duties of LP defined in ACTM related to loco operation | |
| 19. | Description of tools provided to LP and provided on loco | |
| 20. | • Brief knowledge of caution order, Permanent &temporary speed restriction, OHE boards, Engineering boards, coasting boards and gradient boards and their observance.<br>• Keep watch on alertness of ALP.<br>• Sharp lookout on signal, track, OHE & adjacent line, Tress passers etc. | |
| 21. | Use of Flasher light and actions to be taken when flasher light of opposite direction train is glowing. | |
| 22. | Looking back in curves for smooth running of train i.e. abnormal sound, hanging part, smoke, etc. | |

**GPM-3**

**DESCRIPTION**
**Safety Module – Duties/Role of LP**

**DURATION**
**3 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Derailment, collision, etc | 3 days |
| 2. | Train protection and opposite line protection | |
| 3. | OHE hanging / OHE breakdown | |
| 4. | Axle seizure / hot axle | |
| 5. | Smoke from underslung equipment | |
| 6. | During water on track or flood | |
| 7. | Obstructed track / land slide | |
| 8. | Train operation during fog/poor visibility | |
| 9. | In case of train parting | |
| 10. | Flasher light of opposite train glowing | |
| 11. | Panto entanglement and securing of broken pantograph & isolation of pantograph (through HPT link on loco roof) | |
| 12. | In case of loco entered in unwired territory | |
| 13. | Cattle Run Over (CRO) & inspection of loco after CRO | |
| 14. | Stabling of locomotives & securing of train/loco to | |

| Sno. | Subject | Duration in days |
|---|---|---|
| | avoid rolling down/rolling back. | |
| 15. | Action to be taken train stalled on gradient | |

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**GPM-4**

**DESCRIPTION**
**Loco Operation Module**

**DURATION**
**3 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Sharp lookout on signal, track, OHE & adjacent line, Tress passers etc. | **4 days** |
| 2. | Reading of Trouble shooting directory of various three phase & conventional locomotives. | |
| 3. | EEC & GR manual operation in Conventional loco. | |
| 4. | Wedging of different type of relays & contactors in conventional locomotive | |
| 5. | Flasher light – its checking procedure & usage | |
| 6. | Precautions to be followed in case of any equipment of loco are isolated (as per TSD). | |
| 7. | VCD act on line | |
| 8. | Headlight not working | |
| 9. | Horn not working | |
| 10. | Speedometer not working | |
| 11. | BPEMS acted on line | |
| 12. | Operation of PTDC in three phase locomotive | |
| 13. | Throttle not responding | |
| 14. | Harmonic filter isolation | |
| 15. | MR not buildup | |
| 16. | BP/FP not creating | |
| 17. | BP not maintaining | |
| 18. | Working from rear cab | |
| 19. | Fire in locomotive | |
| 20. | Flat wheel in locomotives & precaution to avoid wheel skid, wheel slip & rail burn (Continuous wheel slip and use of sanders) | |
| 21. | Procedure of attaching dead locomotive in train. | |
| 22. | Function of various safety equipment VCD, Fog safe/Fog Pass device, KAVACH, RDAS, etc. | |
| 23. | RTIS equipment, usage and precautions. | |
| 24. | Types of loco faults, reading method DDS, status code and reading of troubleshooting directories. | |
| 25. | Communicating to TLC or other official regarding information of any abnormality and assistance required (protocol to be followed like train no., loco no., section, between stations, km no., nature of abnormality, assistance required, etc.) | |

**GPM-5**

**DESCRIPTION**
**Train Operation Module**

**DURATION**
**2 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Detection of flat wheel in train | **3 days** |
| 2. | Train stalled on gradient section & precautions to avoid rolling down | |
| 3. | In case of FIBA, VESDA, etc act on line | |
| 4. | In case of Alarm Chain Pulling (ACP) in train | |
| 5. | Brake binding in coach/wagon | |
| 6. | Coach brake system isolation / pneumatically by pass | |
| 7. | Train working in case air suspension bellow ruptured/punctured | |
| 8. | Walkie-talkie not working | |
| 9. | Train working without Guard | |
| 10. | Overview of EOTT | |
| 11. | Hose pipe disconnection | |
| 12. | Tips for good driving technique, controlling of on different terrain, etc. | |
| 13. | Description of booked speed, maximum permissible speed, working time table etc. | |
| 14. | Case Studies | |

**GPM-6**

**DESCRIPTION**
**Loco Pneumatic Module**

**DURATION**
**3 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Overview on braking system of three phase locomotive (including WAG12) | 3days |
| 2. | Working of A9, SA9, parking brake on three phase locomotives | |
| 3. | Overview on braking system of conventional locomotive | |
| 4. | Working of A9 & SA9 on conventional locomotives | |
| 5. | Action to be taken in case of MR pressure not build up | |
| 6. | Action to be taken in case of BP pressure not build up | |
| 7. | Action to be taken in case of FP pressure not build up | |
| 8. | Action to be taken in case of BP pressure not maintaining | |

| Sno. | Subject | Duration in days |
|---|---|---|
| 9. | Miscellaneous failures of air brake of locomotive | |
| 10. | Pneumatically isolation of bogie | |
| 11. | Releasing of parking/hand brake in case of brake binding in locomotive | |
| 12. | Location of air dryer and isolating procedure | |
| 13. | Procedure of various tests & checks related to loco brake system like CP efficiency test, BP & FP leak test, train leak test, Loco brake power test, etc. | |
| 14. | Discussion of various pneumatic failures and remedies | |

**GPM-7**

**DESCRIPTION**
**Transportation, First Aid & Fire Fighting**

**DURATION**
**24days**

## CONTENTS

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Brief description of GR & SR pertaining to LOCO PILOTs. Correction slips. | **24 days** |
| 2. | Important definitions such as Ad. Distance, Block Section, Isolation, Faulting mark, Running Line, Axle counter, Station section. Authority to proceed and Station working rules | |
| 3. | Light engine, Relief Engine, Banking Engine, Train Engine, Shunting Engine, etc | |
| 4. | Personal equipment of LOCO PILOTS | |
| 5. | Stations<br>• Kinds and classification of stations minimum essential signals etc. for each station.<br>• Block and non-Block stations.<br>• Block overlap.<br>• Yard Layout, etc. | |
| 6. | System of working –<br>• Absolute Block System<br>• Automatic Block System,<br>• Train following System, etc | |
| 7. | Signals –<br>• Necessity and Evaluation of signals,<br>• classification and kinds of signals,<br>• Approach and Departure signals permissive signals, subsidiary signals, etc. | |
| 8. | DEFECTIVE SIGNALS<br>• Defective signal, Automatic signals, Semi-automatic and Gate signals, manual signals.<br>• Action and rules for passing defective signals of different types.<br>• Practical tour for sight in Yard. | |
| 9. | ENGINEERING SIGNALS –<br>• Engineering Signals. Their placement.<br>• Permanent and Temporary Engineering Cautions.<br>• Brief of Chat Section. | |

| | | |
|---|---|---|
| | • Speeds. | |
| 10. | Isolation | |
| 11. | Different authorities/forms | |
| 12. | WHISTLE CODES<br>What is a Whistle Code? When and how is to be used?<br>Precautions before starting a Train from a station (originating) or Yard right signals. | |
| 13. | Working of trains<br>• When Headlight is failed.<br>• When a train is received on Blocked line or to be started from a Non-Signal/Non running line without brake van or without guard.<br>• Departure from non-signaled line<br>• When train has a hot axle.<br>• Having ODC<br>• Train formed from a non-TXR point, etc.<br>• Caution order<br>• Authorized persons in Cab<br>Stopping on gradient | |
| 14. | Abnormal working –<br>• Rules for working of trains – single line working on Double line in absolute and automatic Block Sections.<br>• Total failure Communication.<br>• Rules for sending relief engine from right line and wrong line.<br>• Precautions to be observed during abnormal working in different cases. | |
| 15. | Shunting –<br>• Kinds of shunting.<br>• Precautions for safe and smooth shunting.<br>• Rules for shunting in Yard, coaching Yard and “B” class stations.<br>• Model Room training. | |
| 16. | • Train operation in fog | |
| 17. | Protection Rules | |
| 18. | Exchange of Signal & its significance | |
| 19. | Accident –<br>• Duties of LOCO PILOT in case of accident.<br>• Mid Section derailments. Engine failures etc.<br>• Over shooting<br>• Protection in block section in case of accidents.<br>Use of detonators | |
| 20. | • Duties in case of fire in train/loco. | |
| 21. | Identifying and handling of various types of fire extinguishers, precautions to be taken while extinguishing fire, Render first aid to the burn injuries, first aid to persons affected by suffocation, communication, etc. | |
| 22. | Discussion and queries on safety and accidents. | |
| 23. | Accident free service award. | |

**GPM-8**

**DESCRIPTION**
**C&W and Air Brake Module & EMU/MEMU, Vande-Bharat type train set, Push-Pull, etc.**

**DURATION**
**2 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 11. | Different types of Rolling stock - Nomenclature | 2days |
| 12. | Air brake system - working method with diagrams, parts & functions, working single pipe and Twin pipe air brake system. Pneumatic brake - working principle, BMBS and APS, Hand brake in rolling stock. | |
| 13. | Brake power certificates - kinds - Coaching & Freight trains, percentage of brake power required in goods/mixed/passenger trains, Alarm chain pulling - resetting & isolation, FIBA, Fire Detection(VESDA), etc | |
| 14. | Continuity test, cases of brake binding and releasing, Flat tire detection and action to be taken. | |
| 15. | LHB coach, Hybrid coach, conventional coach, Hot axle symptoms and action to be taken. | |
| 16. | Guard & Loco Pilot check - clearance from road side station/sidings/non-TXR points & brake power calculation | |
| 17. | Brake continuity test and its importance, isolation of distributor valve. | |
| 18. | Duties in case of fire in train | |
| 19. | Overview of EMU/MEMU, Vande-Bharat type train set, Push-Pull, etc. | |

**GPM-9**

**DESCRIPTION**
**TrD Module**

**DURATION**
**1 day**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Introduction to TrD | 1day |
| 2. | Brief of Power Supply arrangement. | |
| 3. | Cantilever - Its parts | |
| 4. | Use of ATD in OHE | |
| 5. | Neutral Section. | |
| 6. | Different type of TrD boards & description | |
| 7. | Panto Entanglement - it's causes | |
| 8. | Instruction of Loco Pilots to in case of tripping of OHE | |
| 9. | Duties of Loco Pilot during OHE unusual and Break Down | |

**GPM-9**

**DESCRIPTION**
**Simulator Training& Tripping Car**

**DURATION**
**6days**

**CONTENTS**

**Simulator Training** – simulator training may be imparted to develop good driving skills on level terrain, light ascending terrain, Light Descending Grade, Heavy Ascending Grade, Heavy Descending Grade, entering in loop line, approaching signal on Danger, approaching starter signal, etc.

**Tripping car –** Practical training of troubleshooting used TSD**.**

**GPM-10**

**DESCRIPTION**
**Review & Exam**

**DURATION**
**1day**

**CONTENTS**

**Review & Exam**

**DESCRIPTION**
**Loco/Train handling on line**

**DURATION**
**20 days**

**CONTENTS**

After the completion of a 58-day training at Traction Training Centers, trainees shall be directed to their respective divisions for a 20-day 'Loco/Train Handling on Line,' as outlined in the Board's letter no. 2004/M(L)/466/7101 dated 31.08.2009.

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**Instruction for training centers & Instructors**

- During classroom training, it is preferable to use audio-visual aids with digital content.
- In-depth knowledge of various circuits, such as electrical and pneumatic circuits, etc is not required.
- The training should primarily emphasize the activities and responsibilities of the LP in their day-to-day operations with locomotives/trains.
- During subject-specific classroom training, it is essential to emphasize discussions on safety cases, including SPAD, accidents, derailments, collisions, side collisions, and incidents involving entering unwired/sand humps. This emphasis should highlight how adherence to proper procedures or correct actions by the LP on the subject could have effectively prevented such cases.

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**LP(G) to LPP (Loco) Promotional Training Course – Electric Traction**

**Course Code - PPM**

| Sub-Module no. | Training Module | Duration in days |
|---|---|---|
| **PPM-1** | Driving Module | 2 |
| | **Field Training / Footplate** | 2 |
| **PPM-2** | Safety Module | 1 |
| **PPM-3** | Loco Operation Module | 1 |
| | **Field Training / Footplate** | 2 |
| **PPM-4** | Train Operation module | 1 |
| **PPM-5** | Loco Pneumatic Module | 1 |
| **PPM-6** | Transportation Module - Transportation, First Aid, Fire Fighting, | 6 |
| **PPM-7** | C&W and Air Brake Module & overview of EMU/MEMU, Vande Bharat type train set, Push-Pull etc. | 1 |
| | **Field Training / Footplate** | 2 |
| **PPM-8** | Simulator Training | 2 |
| **PPM-9** | Case Studies | 1.5 |
| | Review & Exam | 0.5 |
| | **Total days** | **24** |

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**PPM-1**

**DESCRIPTION**
**Driving Module**

**DURATION**
**2 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 23. | Precaution before attaching the locomotive on coaching trains | 2 days |
| 24. | How to start train without jerk and acceleration, deacceleration, etc. | |
| 25. | Brake continuity, Brake feel & brake power test<br>• Procedure for carry out of brake continuity test and locations/situations where carry out.<br>• Importance of brake feel test & brake power for safety of trains.<br>• Procedure for carry out brake feel test & brake power test. | |

| Sno. | Subject | Duration in days |
|---|---|---|
| 26. | Punctuality of coaching trains, Working time table Maximum permissible speed, etc. | |
| 27. | Observance of permissible speed, permanent, & temporary speed restrictions, etc. | |
| 28. | Description of dynamic/regenerative braking procedure and its benefits. | |
| 29. | Use of BPCS and precaution while using it. | |
| 30. | Good driving technique, instructions for train operation, alertness, etc. | |
| 31. | Stopping of coaching train with position of coach display board/stop board provided at platform. | |
| 32. | Train operation in ghat sections | |
| 33. | Duties of LP defined in ACTM related to loco operation | |
| 34. | • Observance of caution order, Permanent &temporary speed restrictions, engineering boards, OHE boards, coasting boards, gradient boards, etc.<br>• Keep watch on alertness of ALP.<br>• Sharp lookout on signal, track, OHE & adjacent line, Tress passers etc.<br>• Looking back in curves for smooth running of train i.e. abnormal sound, hanging part, smoke, etc. | |
| 35. | Use of Flasher light and actions to be taken when flasher light of opposite direction train is glowing. | |

**Field Training / Footplate** **2 days**

- Field Training / Footplate under Training Instructor/Chief Loco Inspector.

**PPM-2**

**DESCRIPTION** **DURATION**

**Safety Module – Duties/Role of LP** **1 day**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 16. | Derailment, collision, fire etc | 1 day |
| 17. | Train protection and opposite line protection | |
| 18. | OHE hanging / OHE breakdown | |
| 19. | Axle seizure / hot axle | |
| 20. | Smoke from underslung equipment | |
| 21. | During water on track or flood | |
| 22. | Obstructed track / land slide | |
| 23. | Train operation during fog/poor visibility | |
| 24. | In case of train parting | |

| Sno. | Subject | Duration in days |
|---|---|---|
| 25. | Flasher light of opposite train glowing | |
| 26. | Panto entanglement and securing of broken pantograph & isolation of pantograph (through HPT link on loco roof) | |
| 27. | In case of loco entered in unwired territory | |
| 28. | Cattle Run Over (CRO) & inspection of loco after CRO | |
| 29. | Stabling of locomotives & securing of train/loco to avoid rolling down/rolling back. | |
| 30. | Action to be taken train stalled on gradient | |
| 31. | Communicating to TLC or other official regarding information of any abnormality and assistance required (protocol to be followed like train no., loco no., section, between stations, km no., nature of abnormality, assistance required, etc.) | |

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**PPM-3**

**DESCRIPTION**
**Locomotive Operation Module**

**DURATION**
**2 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 26. | Description and feature of electric coaching locomotives and difference between freight & coaching locos. | **2 days** |
| 27. | Description of latest modifications and changes in locomotives and their requirement, actions by crew etc. | |
| 28. | Hotel load and related troubleshooting. | |
| 29. | Reading of Trouble shooting directory (in-built/external) of various three phase & conventional locomotives. | |
| 30. | Precautions to be followed in case of any equipment of loco is isolated (as per TSD). | |
| 31. | Flat wheel in locomotives & precaution to avoid wheel skid, wheel slip & rail burn (Continuous wheel slip and use of sanders). | |
| 32. | Speedometer not working. | |
| 33. | VCD act on line. | |
| 34. | Operation of PTDC in three phase locomotive. | |
| 35. | Throttle not responding. | |
| 36. | Harmonic filter isolation. | |
| 37. | Working from rear cab. | |
| 38. | Function of various safety equipment VCD, Fog safe/Fog Pass device, KAVACH, RDAS, etc. | |
| 39. | RTIS equipment, usage and precautions. | |
| 40. | Section clearing in case of SIV internal fault. | |
| 41. | Effectiveness of regenerative/dynamic braking, upon application of A9/SA9, isolation upon emergency braking &no tension of OHE. | |
| 42. | Description of auto regression feature of locomotives | |

| Sno. | Subject | Duration in days |
|---|---|---|
| | especially in case of full service brake application and emergency brake application. | |
| 43. | Push-Pull loco operation. | |
| 44. | EEC & GR manual operation in Conventional loco. | |
| 45. | Wedging of different type of relays & contactors in conventional locomotive. | |

**Field Training / Footplate** **2 days**

- Field Training / Footplate under Training Instructor/Chief Loco Inspector.

**PPM-4**

**DESCRIPTION** **DURATION**
**Train Operation Module** **1 day**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 15. | Detection of flat wheel in train | **1 day** |
| 16. | Train stalled on gradient section & precautions to avoid rolling down | |
| 17. | In case of FIBA, VESDA, etc act on line | |
| 18. | In case of Alarm Chain Pulling (ACP) in train | |
| 19. | Brake binding in coach/wagon | |
| 20. | Coach brake system isolation / pneumatically by pass | |
| 21. | Train working in case air suspension spring failed | |
| 22. | Walkie-talkie not working | |
| 23. | Train working without Guard | |
| 24. | Overview of EOTT | |
| 25. | Hose pipe disconnection | |
| 26. | Tips for good driving technique, controlling of on different terrain, etc. | |
| 27. | Description of booked speed, maximum permissible speed, working time table etc. | |
| 28. | Miscellaneous troubles of coaching trains | |
| 29. | Importance of feed pipe continuity in LHB coaching movement. | |
| 30. | Actions in case of fire in train. | |

**PPM-5**

**DESCRIPTION** **DURATION**
**Loco Pneumatic Module** **1day**

## CONTENTS

| Sno. | Subject | Duration in days |
|---|---|---|
| 15. | Overview on braking system of three phase & conventional locomotives | 1day |
| 16. | Action to be taken in case of MR pressure not build up | |
| 17. | Action to be taken in case of BP pressure not build up | |
| 18. | Action to be taken in case of FP pressure not build up | |
| 19. | Action to be taken in case of BP pressure not maintaining | |
| 20. | Miscellaneous failures of air brake of locomotive | |
| 21. | Pneumatically isolation of bogie | |
| 22. | Releasing of parking/hand brake in case of brake binding in locomotive | |
| 23. | Procedure of various tests & checks related to loco brake system like CP efficiency test, BP & FP leak test, train leak test, Loco brake power test, etc. | |
| 24. | Discussion of various pneumatic failures and remedies | |
| 25. | BPEMS functions and usage | |

**PPM-6**

**DESCRIPTION**
**Transportation, First Aid & Fire Fighting**

**DURATION**
**6days**

## CONTENTS

| Sno. | Subject | Duration in days |
|---|---|---|
| 24. | Brief description of GR & SR pertaining to LOCO PILOTs. Correction slips. | 6 days |
| 25. | Summarizing of Important definitions such as Adequate. Distance, Block Section, Isolation, Faulting mark, Running Line, Axle counter, Station section. Authority to proceed and Station working rules | |
| 26. | Light engine, Relief Engine, Banking Engine, Train Engine, Shunting Engine, etc | |
| 27. | Personal equipment of LOCO PILOTS | |
| 28. | Stations<br>• Kinds and classification of stations minimum essential signals etc. for each station.<br>• Block and non-Block stations.<br>• Block overlap.<br>• Yard Layout, etc. | |
| 29. | System of working –<br>• Absolute Block System<br>• Automatic Block System,<br>• Train following System, etc | |
| 30. | Signals –<br>• Necessity and Evaluation of signals,<br>• classification and kinds of signals,<br>• Approach and Departure signals permissive signals, subsidiary signals, etc. | |
| 31. | Defective signals | |

| | | |
|---|---|---|
| | • Defective signal, Automatic signals, Semi-automatic and Gate signals, manual signals.<br>• Action and rules for passing defective signals of different types.<br>• Practical tour for sight in Yard. | |
| 32. | Engineering signals –<br>• Engineering Signals. Their placement.<br>• Permanent and Temporary Engineering Cautions.<br>• Brief of Chat Section.<br>• Speeds. | |
| 33. | Isolation | |
| 34. | Different authorities/forms | |
| 35. | Whistle codes<br>What is a Whistle Code? When and how is to be used?<br>Precautions before starting a Train from a station (originating) or Yard right signals. | |
| 36. | Abnormal working –<br>• Rules for working of trains – single line working on Double line in absolute and automatic Block Sections.<br>• Total failure Communication.<br>• Rules for sending relief engine from right line and wrong line.<br>• Precautions to be observed during abnormal working in different cases. | |
| 37. | Shunting –<br>• Kinds of shunting.<br>• Precautions for safe and smooth shunting.<br>• Rules for shunting in Yard, coaching Yard and "B" class stations.<br>• Model Room training. | |
| 38. | • Train operation in fog | |
| 39. | Protection Rules | |
| 40. | Exchange of Signal & its significance | |
| 41. | Accident –<br>• Duties of Loco Pilot in case of accident.<br>• Mid Section derailments. Engine failures etc.<br>• Over shooting<br>• Protection in block section in case of accidents.<br>• Use of detonators | |
| 42. | • Duties in case of fire in train/loco. | |
| 43. | Identifying and handling of various types of fire extinguishers, precautions to be taken while extinguishing fire, Render first aid to the burn injuries, first aid to persons affected by suffocation, communication, etc. | |

**PPM-7**

**DESCRIPTION** **DURATION**
**C&W and Air Brake Module &** **1day**
**EMU/MEMU, Vande-Bharat type train set,**
**Push-Pull, etc.**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 20. | Different types of coaching stock - Nomenclature | 1 day |
| 21. | Air brake system - working method with diagrams, parts & functions, working single pipe and Twin pipe air brake system. Pneumatic brake - working principle. Bogie mounted brake cylinders etc. | |
| 22. | Brake power certificates - kinds - Coaching trains, percentage of brake power required in mixed/passenger trains. | |
| 23. | Alarm chain pulling - resetting & isolation, FIBA, Fire Detection(VESDA), etc | |
| 24. | Continuity test, cases of brake binding and releasing, Flat wheel detection and action to be taken, isolation of distributor valve, isolation of bogie pneumatically, etc. | |
| 25. | LHB coach, Hybrid coach, conventional coach, Hot axle symptoms and action to be taken. | |
| 26. | Brake continuity test and its importance | |
| 27. | Overview of EMU/MEMU, Vande-Bharat type train set, Push-Pull, etc. | |
| 28. | Isolation / bypassing of coaches pneumatically | |
| 29. | Hose pipe changing | |

**Field Training / Footplate** **2 days**

- Field Training / Footplate under Training Instructor/Chief Loco Inspector.

**PPM-8**

**DESCRIPTION** **DURATION**
**Simulator Training** **2days**
& Tripping Car

**CONTENTS**

**Simulator Training** – simulator training may be imparted to develop good driving skills on different type of terrains, jerk free starting & stopping, acceleration & deacceleration, controlling of speed etc.

**Tripping car –** Practical training of troubleshooting used TSD**.**

**PPM-9**

**DESCRIPTION** **DURATION**
**Case Studies** **1½ days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 10. | Discussion on issues noticed during footplate training | 2 days |
| 11. | **Case Studies** of various accidents and lessons linked with various above modules. (Particularly focusing on scenarios where prompt actions by crew could have averted the incidents or accidents.) | |
| 12. | Revision of important safety instructions, procedures, etc. | |
| 13. | How to submit a memo to the section controller/TLC through SM/ASM for any information required to be brought to notice. | |
| 14. | Important dos & don’ts like switching off of mobile phone, not to use walkie-talkie for getting information of signal aspect from station staff, drunkenness on duty, etc. Any other topic deemed fit to be imparted to trainee ALPs. | |
| 15. | Any other issues related to Coaching trains/locomotives | |

**DESCRIPTION** **DURATION**
**Review & Exam** **½ day**

**CONTENTS**

Review & Exam

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**Instruction for training centers& Instructors**

- During classroom training, it is preferable to use audio-visual aids with digital content.
- In-depth knowledge of various circuits, such as electrical and pneumatic circuits, etc is not required.
- The training should primarily emphasize the activities and responsibilities of the LP in their day-to-day operations with locomotives/trains.
- During subject-specific classroom training, it is essential to emphasize discussions on safety cases, including SPAD, accidents, derailments, collisions, side collisions, and incidents involving entering unwired/sand humps. This emphasis should highlight how adherence to proper

procedures or correct actions by the LP on the subject could have effectively prevented such cases.

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**ALP Refresher Training Course– Combined**

**Course Code - ARM**

| Module no. | Training Content | Duration in days |
|---|---|---|
| **ARM-1** | Loco module – Summarizing of various systems/sub-systems of Electric locomotives (3-Ph & Conv,) and Diesel Locomotives and important modifications in locomotives along with related instructions for ALP. | 2 |
| **ARM-2** | Driving module | 1 |
| **ARM-3** | Loco Pneumatic module (Electric & Diesel locos) | 2 |
| **ARM-4** | Loco Operation module | 2 |
| **ARM-5** | Safety module | 1 |
| **ARM-6** | TrD module | 0.5 |
| **ARM-7** | C&W module | 1 |
| **ARM-8** | Transportation module - Transportation, First Aid, Fire Fighting | 6 |
| **ARM-9** | Simulator Training | 1 |
| **ARM-10** | **Case Studies** of various accidents with focus on scenarios where prompt actions by ALPs could have averted the incidence or accident. | 1 |
| | Recapitulation | 0.5 |
| | **Total days** | **18** |

**ARM-1**

**DESCRIPTION**
**Loco Module**
**including important modifications in locomotive**

**DURATION**
**2days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 20. | Discussion on problems faced by ALPs during train working | 2 days |
| 21. | Summarizing of general description of Three phase & conventional electric locomotives (including microprocessor & SIV based locos) | |
| 22. | Summarizing of general description of different type of Diesel locomotives (including microprocessor & SIV based locos) | |
| 23. | Summarizing of locations of safety & important equipment on electric & diesel locomotives. | |
| 24. | Summarizing of location and functions of various types of relays, switches, MCBs, fuses, and other electrical equipment, along with their normal positions, need to be regularly checked and operated during train operations | |
| 25. | Description of latest modifications and changes in electric & diesel locomotives and their requirement, actions by crew etc.. | |

**ARM-2**

**DESCRIPTION**
**Driving Module**

**DURATION**
**1 day**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Proper call out of signal with LP. Demonstration of procedure of call out signal as per instructions laid down. This should be demonstrated by each trainee ALP multiple of times. | 1 day |
| 2. | • Use of emergency brake (RS valve) - demonstration of emergency brake application through RS valve. This should be practically operated by each trainee ALP.<br>• Keep watch on alertness of LP.<br>• Sharp lookout on signal, track, OHE & adjacent line, Tress passers etc.Invariably keep the eye on the speedometer for speed monitoring and warn LP if speed exceeds the prescribed speed limit. | |

| | | |
|---|---|---|
| 3. | • Checking procedure of Flasher light and its usage. Action to be taken when flasher light of opposite direction train is glowing. | |
| 4. | • Looking back in curves for smooth running of train i.e. abnormal sound, hanging part, smoke, etc.<br>• Reading of gauges and recording in logbook, recoding energy/fuel consumption in logbook & CMS | |
| 5. | Inspection of loco at halts, inspection of axle boxes, under frame equipment and TM fixation and draining of MRs etc. | |
| 6. | Checking of loco at the originating, intermediate points and crew changing points on line. | |
| 7. | Checking of coupling after attaching on load | |
| 8. | Action to be taken in case of OHE tripped during dynamic / regenerative braking | |
| 9. | Procedure of passing neutral section<br>• Description & usage of neutral section related boards (500 meter board, 250 meter board, DJ open board, DJ close board).<br>• Precaution to be taken before neutral section. | |

**ARM-3**

**DESCRIPTION** **DURATION**

**Loco Pneumatic Module** **2 days**

## CONTENTS

| Sno. | Subject | Duration in days |
|---|---|---|
| 1 | Summarizing of braking system of electric &diesel locomotives | 2 days |
| 2. | Action to be taken in case of MR, BP, FP pressure not build up/not maintaining | |
| 3. | Miscellaneous failures of air brake of locomotives | |
| 4. | Pneumatically isolation of bogie | |
| 5. | Releasing of parking/hand brake in case of brake binding in locomotives | |
| 6. | Overview on operation of PTDC in three phase electric locomotive | |
| 7. | Location of air dryer and isolating procedure | |
| 8. | Actions to be taken in case of BP/ FP angle cock broken/Hose pipe damaged due to CRO | |
| 9. | Application/releasing of parking/hand brake of locomotives and related failures & troubleshooting | |
| 10. | Procedure of various tests & checks related to loco brake system like CP efficiency test, BP & FP leak test, train leak test, Loco brake power test, etc. | |
| 11. | Miscellaneous failure related to brake system of electric & diesel locomotives along with troubleshooting | |

**ARM-4**

**DESCRIPTION**
**Loco Operation Module**

**DURATION**
**2 days**

## CONTENTS

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Discussion on various common defects in different type of electric & diesel locomotives | 2 days |
| 2. | Reading of Troubleshooting directories of electric & diesel locomotives, fault acknowledgment, actions as per TSD. | |
| 3. | Isolation procedure for isolating various equipment. | |
| 4. | Wedging of relays & contactors in conventional locomotives. | |
| 5. | Miscellaneous failures of electric & diesel locomotive | |
| 6. | Correction in TSD | |
| 7. | Discussion on various tests to be conducted on electric & diesel locos | |
| 8. | Application/releasing of parking/hand brake of locomotives and related failures & troubleshooting | |
| 9. | Procedure of MU loco operation, cab changing in MU loco, dead attaching of loco, stabling of locomotives, etc. | |
| 10. | Grounding & un-grounding of electric locomotive | |
| 11. | Summarizing the duties defined in ACTM like Cleanliness of Loco, ALP shall assist the LP, appearance and proper uniform, duty assigned to him by the LP/CC/Sr.CC, maintaining a log of times and detentions enroute, etc. | |
| 12. | Actions to be taken in case VCD act on line | |

**ARM-5**

**DESCRIPTION**
**Safety Module**

**DURATION**
**1 day**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Action to taken in case train / loco stalled on gradient. | 1 day |
| 2. | Actions to be taken to avoid rolling down/rolling back of train/loco. | |
| 3. | Action to be taken in case of train parting | |
| 4. | Action to be taken in case flat wheel is detected | |
| 5. | Derailment, collision, fire etc | |
| 6. | Train protection and opposite line protection | |
| 7. | OHE hanging / OHE breakdown | |
| 8. | Axle seizure / hot axle | |
| 9. | Smoke from underslung equipment | |
| 10. | During water on track or flood | |
| 11. | Obstructed track / land slide | |
| 12. | Train operation during fog/poor visibility | |
| 13. | In case of train parting | |
| 14. | Flasher light of opposite train glowing | |
| 15. | Panto entanglement and securing of broken pantograph & isolation of pantograph (through HPT link on loco roof) | |
| 16. | In case of loco entered in unwired territory | |
| 17. | Cattle Run Over (CRO) & inspection of loco after CRO | |
| 18. | Stabling of locomotives & securing of train/loco to avoid rolling down/rolling back. | |
| 19. | Communicating to TLC/TPC/Section controller or other official regarding information of any abnormality and assistance required (protocol to be followed like train no., loco no., section, between stations, km no., nature of abnormality, assistance required, etc.) | |

**ARM-6**

**DESCRIPTION**
**TrD Module**

**DURATION**
**½ day**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Brief Knowledge of TrD<br>• Brief overview of OHE system | ½ day |

| | | |
|---|---|---|
| | • Familiarization with OHE equipment for identification (including cantilever assembly) | |
| 2. | Procedure of passing neutral section<br>• Description & usage of neutral section related boards (500 meter board, 250 meter board, DJ open board, DJ close board).<br>• Precaution to be taken before& after neutral section. | |
| 3. | Provision of Sigma Board& usage. | |
| 4. | Communication with TPC/TLC in case of panto broken or OHE hanging. | |
| 5. | Action to be taken in case of panto broken/entangled. | |
| 6. | Roof inspection & isolation of pantograph from HPT link and securing of broken panto, etc. | |
| 7. | Duties of ALP during OHE Break Down. | |

**ARM-7**

**DESCRIPTION** **DURATION**
**C&W Module** **1 day**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Different types of Rolling stock - Nomenclature | 1 day |
| 2. | Summarization of air brake system of coaches, wagons, BMBS and APS, etc and Hand brake in rolling stock. | |
| 3. | Alarm chain pulling - resetting & isolation, FIBA, Fire Detection (VESDA), etc | |
| 4. | Continuity test, cases of brake binding and releasing, Flat tire detection and action to be taken, isolation of distributor valve, etc | |
| 5. | Guard & Loco Pilot check - clearance from road side station/sidings/non-TXR points & brake power calculation | |
| 6. | Duties in case of fire in train | |
| 7. | Summarizing of type of Brake power certificates, percentage of brake power required in goods/mixed/passenger trains, etc. | |
| 8. | Overview of EMU/MEMU, Vande-Bharat type train set, Push-Pull, etc. | |

**ARM-8**

**DESCRIPTION** **DURATION**
**Transportation, First Aid, Fire Fighting** **6days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 30. | Brief description of GR & SR. Correction slips | 6 days |

| Sno. | Subject | Duration in days |
|---|---|---|
| 31. | Important definitions such as Adequate distance, Block Section, Isolation, Faulting mark, Running Line, Axle counter, Station section, etc. | |
| 32. | Light engine, Relief Engine, Banking Engine, Train Engine, Shunting Engine, etc. | |
| 33. | Systems of working, Ghat working/Ghat Rules Train formed from a non-TXR point , etc. | |
| 34. | Unusual working e.g. failure of Head light, train received on Blocked line or to be started from a Non-Signal/Non running line, without brake van or without guard, with hot axles, etc. | |
| 35. | Types of signaling systems, classification of signals. Approach and Departure signals permissive signals, subsidiary signals, automatic signal, semi-automatic signal, etc. | |
| 36. | Defective signals and authority to pass. | |
| 37. | Various authorities used during train operation & shunting | |
| 38. | Duties of in case of accident, Mid Section derailments, protection of block section in case of accidents/incapacitation, Use of detonators, etc. | |
| 39. | Duties in case of fire in train/loco. | |
| 40. | Identifying and handling of various types of fire extinguishers, precautions to be taken while extinguishing fire, Render first aid to the burn injuries, first aid to persons affected by suffocation, communication, etc. | |

**ARM-9**

**DESCRIPTION** **DURATION**

**Simulator Training** **1day**
& Tripping car

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Simulator training for confidence building to apply emergency brake (RS valve) in any unsafe situation. | 1 day |
| 2. | Demonstration of signal call out by each ALP | |
| 3. | Manual operation of GR & EEC in conventional loco tripping car (each individual trainee ALP) | |

**ARM-10**

**DESCRIPTION** **DURATION**

**Cases Studies of various accidents** **1day**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Case Studies of various accidents and lessons. (Particularly focusing on scenarios where prompt actions by ALPs could have averted the incidents or accidents.) | 1 day |

**DESCRIPTION** **DURATION**

**Recapitulation** **½ day**

**CONTENTS**

- Recapitulation

*****

**Instruction for training centers& Instructors**

- This course shall be applicable to all ALPs and is deemed to refresh the learning of both the tractions.
- During classroom training, it is preferable to use audio-visual aids with digital content.
- In-depth knowledge of various circuits, such as electrical and pneumatic circuits, etc is not required.
- The training should primarily emphasize the activities and responsibilities of the ALP in their day-to-day operations with locomotives/trains.
- During subject-specific classroom training, it is essential to emphasize discussions on safety cases, including SPAD, accidents, derailments, collisions, side collisions, and incidents involving entering unwired/sand humps. This emphasis should highlight how adherence to proper procedures or correct actions by the ALP on the subject could have effectively prevented such cases.
- There shall **NOT** be any pass / fail criteria in refresher course.

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## LP Refresher Training Course– Combined

**Course Code - PRM**

| Module no. | Training Content | Duration in days |
|---|---|---|
| **PRM-1** | Loco module – Summarizing ofvarious systems/sub-systems of different type of electric & diesel locos and important modifications along with related instructions for LP. | 2 |
| **PRM-2** | Driving Module | 1 |
| **PRM-3** | Loco Pneumatic Module (electric & diesel locos) | 1 |
| **PRM-4** | Loco Operation Module | 2 |
| **PRM-5** | Safety Module | 1 |
| **PRM-6** | TrD Module | 0.5 |
| **PRM-7** | C&W Module | 0.5 |
| **PRM-8** | Transportation Module - Transportation, First Aid, Fire Fighting | 6 |
| **PRM-9** | Simulator Training | 2 |
| **PRM-10** | Case Studies of various accidents with focus on scenarios where prompt actions by LPs could have averted the incidence or accident. | 1.5 |
| | Recapitulation | 0.5 |
| | **Total days** | **18** |

**PRM-1**

**DESCRIPTION**
**Loco Module**
**including important modifications in locomotive**

**DURATION**
**2 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 26. | Discussion on problems faced by LPs during train working | 2 days |
| 27. | Summarizing of general description of Three phase & conventional electric locomotives (including microprocessor & SIV based locos) | |
| 28. | Summarizing of general description of different type of diesel locomotives | |
| 29. | Summarizing of locations of safety & important equipment on electric & diesel locomotives. | |
| 30. | Summarizing of location and functions of various types of relays, switches, MCBs, fuses, and other electrical equipment, along with their normal positions, need to be regularly checked and operated during train operations - use of audio-visual content is recommended. | |
| 31. | Description of latest modifications and changes in electric & diesel locomotives and their requirement, actions by crew etc.. | |

**PRM-2**

**DESCRIPTION**
**Driving Module**

**DURATION**
**1 day**

**CONTENTS**

| Sno. | Subject | Duration in days (Sessions) |
|---|---|---|
| 10. | Proper call out of signal with LP. Demonstration of procedure of call out signal as per instructions laid down. | 1 day |
| 11. | Precautions while attaching locomotive on load | |
| 12. | Train starting/stopping without jerk and gradual acceleration & deacceleration | |
| 13. | Tips to avoid train parting, wheel slip, wheel skidding, rail burn etc. | |
| 14. | • Keep watch on alertness of ALP.<br>• Sharp lookout on signal, track, OHE & adjacent line, Tress passers etc | |
| 15. | Procedure of passing neutral section | |

| | | |
|---|---|---|
| | • Description & usage of neutral section related boards (500 meter board, 250 meter board, DJ open board, DJ close board).<br>• Precaution to be taken before neutral section. | |
| 16. | Looking back in curves for smooth running of train i.e. abnormal sound, hanging part, smoke, etc. | |
| 17. | Procedure of MU loco operation, cab changing in MU loco, dead attaching of loco, stabling of locomotives, etc. | |
| 18. | Description of dynamic/regenerative braking procedure and its benefits. | |
| 19. | Summarizing the duties defined in ACTM | |
| 20. | Good driving techniques | |
| 21. | Train controlling in different terrain. | |

**PRM-3**

**DESCRIPTION**
**Loco Pneumatic Module**

**DURATION**
**1 day**

**CONTENTS**

| Sno. | Subject | Duration in days (Sessions) |
|---|---|---|
| 12. | Summarizing of braking system of electric & diesel locomotives | 1 day |
| 13. | Action to be taken in case of MR, BP, FP pressure not build up/not maintaining | |
| 14. | Miscellaneous failures of air brake of locomotive | |
| 15. | Pneumatically isolation of bogie | |
| 16. | Releasing of parking/hand brake in case of brake binding in locomotive | |
| 17. | Operation of PTDC in three phase locomotive | |
| 18. | Location of air dryer and isolating procedure | |
| 19. | Actions to be taken in case of BP/ FP angle cock broken/Hose pipe damaged due to CRO | |
| 20. | Application/releasing of parking/hand brake of locomotives and related failures & troubleshooting | |
| 21. | Procedure of various tests & checks related to loco brake system like CP efficiency test, BP & FP leak test, train leak test, Loco brake power test, etc. | |
| 22. | Miscellaneous failure related to brake system & troubleshooting | |

**PRM -4**

**DESCRIPTION**
**Loco Operation Module**

**DURATION**
**2 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 13. | Discussion on various common defects in electric & diesel locomotives | 2 days |
| 14. | Reading of Troubleshooting directories of electric & diesel locomotives, fault acknowledgment, actions as per TSD. | |
| 15. | Precautions to be followed in case of any equipment of loco are isolated (as per TSD). | |
| 16. | Isolation procedure for isolating various equipment. | |
| 17. | Operation of PTDC in three phase locomotive. | |
| 18. | Wedging of relays & contactors in conventional locomotives. | |
| 19. | Miscellaneous failures of locomotive | |
| 20. | Correction in TSD | |
| 21. | Discussion on various tests conducted on locos | |
| 22. | Application/releasing of parking/hand brake of locomotives and related failures & troubleshooting | |
| 23. | Procedure of MU loco operation, cab changing in MU loco, dead attaching of loco, stabling of locomotives, etc. | |
| 24. | Grounding & un-grounding of locomotive | |
| 25. | Summarizing the duties defined in ACTM like Cleanliness of Loco, ALP shall assist the LP, appearance and proper uniform, duty assigned to him by the LP/CC/Sr.CC, maintaining a log of times and detentions enroute, etc. | |
| 26. | Actions to be taken in case VCD act on line | |
| 27. | Action to be taken in case of OHE tripped during dynamic / regenerative braking | |
| 28. | Application/releasing of parking/hand brake of locomotives and related failures & troubleshooting | |
| 29. | Procedure of attaching dead locomotive in train. | |
| 30. | BPEMS switch and its usage | |
| 31. | How to stop train on level, gradient, Controlling of train & coasting, energy conservation etc. | |

**DESCRIPTION**
**Safety Module**

**DURATION**
**1 day**

## CONTENTS

| Sno. | Subject | Duration in days |
|---|---|---|
| 20. | Action to taken in case train / loco stalled on gradient. | 1 day |
| 21. | Actions to be taken to avoid rolling down/rolling back of train/loco. | |
| 22. | Action to be taken in case of train parting | |
| 23. | Action to be taken in case flat wheel is detected | |
| 24. | Derailment, collision, fire etc | |
| 25. | Train protection and opposite line protection | |
| 26. | OHE hanging / OHE breakdown | |
| 27. | Axle seizure / hot axle | |
| 28. | Smoke from underslung equipment | |
| 29. | During water on track or flood | |
| 30. | Obstructed track / land slide | |
| 31. | Train operation during fog/poor visibility | |
| 32. | In case of train parting | |
| 33. | Flasher light of opposite train glowing | |
| 34. | Panto entanglement and securing of broken pantograph & isolation of pantograph (through HPT link on loco roof) | |
| 35. | In case of loco entered in unwired territory | |
| 36. | Cattle Run Over (CRO) & inspection of loco after CRO | |
| 37. | Stabling of locomotives & securing of train/loco to avoid rolling down/rolling back. | |
| 38. | Communicating to TLC/TPC/Section controller or other official regarding information of any abnormality and assistance required (protocol to be followed like train no., loco no., section, between stations, km no., nature of abnormality, assistance required, etc.) | |

**PRM -6**

**DESCRIPTION**
**TrD Module**

**DURATION**
**½ day**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 8. | Brief Knowledge of TrD<br>• Brief overview of OHE system<br>• Familiarization with OHE equipment for identification (including cantilever assembly) | ½ day |
| 9. | Procedure of passing neutral section<br>• Description & usage of neutral section related boards (500 meter board, 250 meter board, DJ open board, DJ close board).<br>• Precaution to be taken before& after neutral section. | |
| 10. | Provision of Sigma Board& usage. | |
| 11. | Communication with TPC/TLC in case of panto broken or OHE hanging. | |
| 12. | Action to be taken in case of panto broken/entangled. | |
| 13. | Roof inspection & isolation of pantograph from HPT link and securing of broken panto, etc. | |
| 14. | Duties of during OHE Break Down. | |

**PRM-7**

**DESCRIPTION**
**C&W Module**

**DURATION**
**½ day**

**CONTENTS**

| Sno. | Subject | Duration in days (Sessions) |
|---|---|---|
| 9. | Different types of Rolling stock - Nomenclature | ½ day |
| 10. | Summarization of air brake system of coaches, wagons, BMBS and APS, etc and Hand brake in rolling stock. | |
| 11. | Alarm chain pulling - resetting & isolation, FIBA, Fire Detection (VESDA), etc | |
| 12. | Continuity test, cases of brake binding and releasing, Flat tire detection and action to be taken, isolation of distributor valve, etc | |
| 13. | Guard & Loco Pilot check - clearance from road side station/sidings/non-TXR points & brake power calculation | |
| 14. | Duties in case of fire in train | |

| | | |
|---|---|---|
| 15. | Summarizing of type of Brake power certificates, percentage of brake power required in goods/mixed/passenger trains, etc. | |
| 16. | Overview of EMU/MEMU, Vande-Bharat type train set, Push-Pull, etc. | |

**PRM-8**

**DESCRIPTION**
**Transportation, First Aid, Fire Fighting**

**DURATION**
**6days**

**CONTENTS**

| Sno. | Subject | Duration in days (Sessions) |
|---|---|---|
| 41. | Brief description of GR & SR. Correction slips | 6 days |
| 42. | Important definitions such as Adequate distance, Block Section, Isolation, Faulting mark, Running Line, Axle counter, Station section, etc. | |
| 43. | Light engine, Relief Engine, Banking Engine, Train Engine, Shunting Engine, etc. | |
| 44. | Systems of working, Ghat working/Ghat Rules Train formed from a non-TXR point , etc. | |
| 45. | Unusual working e.g. failure of Head light, train received on Blocked line or to be started from a Non-Signal/Non running line, without brake van or without guard, with hot axles, etc. | |
| 46. | Types of signaling systems, classification of signals. Approach and Departure signals permissive signals, subsidiary signals, automatic signal, semi-automatic signal, etc. | |
| 47. | Defective signals and authority to pass. | |
| 48. | Various authorities used during train operation & shunting | |
| 49. | Duties of in case of accident, Mid Section derailments, protection of block section in case of accidents/incapacitation, Use of detonators, etc. | |
| 50. | Duties in case of fire in train/loco. | |
| 51. | Identifying and handling of various types of fire extinguishers, precautions to be taken while extinguishing fire, Render first aid to the burn injuries, first aid to persons affected by suffocation, communication, etc. | |

**PRM -9**

**DESCRIPTION**
**Simulator Training**

**DURATION**
**2 days**

& Tripping car

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 4. | Simulator training for developing good driving techniques on different terrain. | **2 days** |
| 5. | Troubleshooting practice in tripping car with the help of (in-built/external TSD. | |

**ARM-10**

**DESCRIPTION** **DURATION**
**Cases Studies of various accidents** **1½ days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 2. | Case Studies of various accidents and lessons. (Particularly focusing on scenarios where prompt actions by LP/ALPs could have averted the incidents or accidents.) | 1½ days |

**DESCRIPTION** **DURATION**
**Recapitulation** **½ day**

**CONTENTS**

- Recapitulation

*****

**<u>Instruction for training centers& Instructors</u>**

- This course shall be applicable to all LPs and is deemed to refresh the learning of both the tractions.
- During classroom training, it is preferable to use audio-visual aids with digital content.
- In-depth knowledge of various circuits, such as electrical and pneumatic circuits, etc is not required.
- The training should primarily emphasize the activities and

responsibilities of the LP in their day-to-day operations with locomotives/trains.

- During subject-specific classroom training, it is essential to emphasize discussions on safety cases, including SPAD, accidents, derailments, collisions, side collisions, and incidents involving entering unwired/sand humps. This emphasis should highlight how adherence to proper procedures or correct actions by the ALP on the subject could have effectively prevented such cases.
- There shall **NOT** be any pass / fail criteria in refresher course.

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**LP(G) to Motorman Promotional Training Course – Electric Traction**

**Course Code - MPM**

| Module no. | Training Module | Duration in days |
|---|---|---|
| **MPM-1** | EMU/MEMU Module | 3 |
| **MPM-2** | Driving Module | 6 |
| | **Field Training / Footplate** | 2 |
| **MPM-3** | Safety & Operation Module | 5 |
| | **Field Training / Footplate** | 2 |
| **MPM-4** | Pneumatic Module | 2 |
| **MPM-5** | Transportation Module - Transportation, First Aid, Fire Fighting, | 12 |
| **MPM-6** | C&W and Air Brake Module & overview of Vande Bharat type train set, Push-Pull etc. | 1 |
| **MPM-7** | TrD module | 1 |
| **MPM-8** | Case Studies | 1.5 |
| **MPM-10** | Final Exam | 0.5 |
| | **Total days** | **36** |

**Note -**After completion of training at ETTC (36 days), a 12-day Train Handling on Line,' shall be given by respective divisions and trainees shall be booked as Co-Motorman in EMU/MEMU trains.

**MPM-1**

**DESCRIPTION**
**EMU/MEMU Module**

**DURATION**
**3 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Summarizing the general description of electric Multiple Unit (EMU/MEMU) – Three phase & conventional EMU–composition, types of coaches – MC, TC (driving, non driving), speed, Tractive effort, etc. | 3 Days |
| 2. | Brief description on safety items - undergear safety fittings & intactness (cattle guard, rail guard, coupling, axle box, battery box, air suspension bellow, switch gear, tap changer, other bogie/under gear equipment which needs to be checked on line, moisture draining locations, location of lubrication | |

| Sno. | Subject | Duration in days |
|---|---|---|
| | points, etc.. | |
| 3. | Location and functions of various types of relays, switches, MCBs, fuses, and other electrical equipment, along with their normal positions, in LT/HT compartment - need to be regularly checked and operated during train operations | |
| 4. | Detailed description of CAB items, switches/controls to be operated by LP. Understanding symbols in HMI and various operations in HMI like brake release etc. | |
| 5. | Safety items to be checked while taking over charge of train. | |
| 6. | Model room/Field demonstration | |

**MPM-2**

**DESCRIPTION** **DURATION**
**Driving Module** **6days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 36. | Methodology of quality Road Learning and its importance. | 6 days |
| 37. | Proper Self call out of signal.<br>• Demonstration of procedure of self call out of signal as per instructions laid down<br>• This should be demonstrated by each LP multiple times. | |
| 38. | Energizing (cab occupation) and De energizing an EMU rake. | |
| 39. | Brake continuity, Brake feel & brake power test<br>• Procedure for carry out of brake continuity test and locations/situations where carry out.<br>• Importance of brake feel test & brake power for safety of trains.<br>• Procedure for carry out brake feel test & brake power test. | |
| 40. | Instructions for Joint Brake Power Testing as per ACTM | |
| 41. | How to start train without jerk and acceleration, deacceleration, etc. | |
| 42. | Observance of permissible speed, permanent, & temporary speed restrictions, etc. | |
| 43. | Punctuality of coaching trains, Working time table Maximum permissible speed, etc. | |
| 44. | Description of dynamic/regenerative braking procedure and its benefits. | |
| 45. | Use of BPCS and precaution while using it. | |
| 46. | Use of ENS, PIS configuration. | |

| Sno. | Subject | Duration in days |
|---|---|---|
| 47. | Effect on regenerative/dynamic brake upon braking through EP/Auto brakes and no tension of OHE. | |
| 48. | Description of auto regression feature in case of full service brake application and emergency brake application. | |
| 49. | Good driving technique, instructions for train operation, alertness, etc. | |
| 50. | Train operation in ghat sections | |
| 51. | Duties of LP defined in ACTM. | |
| 52. | Description of tools provided to LP and provided on Rake | |
| 53. | • Observance of caution order, Permanent &temporary speed restrictions, engineering boards, OHE boards, coasting boards, gradient boards, etc.<br>• Sharp lookout on signal, track, OHE & adjacent line, Tress passers etc.<br>• ADD and ORD of panto. | |
| 54. | Use of Flasher light and actions to be taken when flasher light of opposite direction train is glowing. | |
| 55. | Stopping of coaching train with position of coach display board/stop board provided at platform. | |
| 56. | Operation of passenger related amenities – Lights, Fans, Ventilation, Announcements, PIS etc. | |

**Field Training / Footplate** **2 days**

- Field Training / Footplate under Training Instructor/Chief Loco Inspector.

**MPM-3**

**DESCRIPTION** **DURATION**
**Safety & Operation Module** **5days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Types of faults, reading method fault in HMI, status code and reading of troubleshooting directories. | 4 days |
| 2. | Working with isolation of different equipment in rake | |
| 3. | Bell codes, Talkback, Fault indication lamps. | |
| 4. | Function & use of BPEMS switch. | |
| 5. | Rescue Driving Mode. | |
| 6. | Train operation in case of Head light defective. | |
| 7. | Train operation in case of SPM defective. | |
| 8. | Train operation in case of HMI defective. | |

| Sno. | Subject | Duration in days |
|---|---|---|
| 9. | Train Operation with deflated/punctured bellow. | |
| 10. | Stabling of rake & securing to avoid rolling down/rolling back. | |
| 11. | Action to be taken train stalled on gradient | |
| 12. | Actions to be taken in case of ACP. | |
| 13. | Actions to be taken & inspection of rake in case of CRO. | |
| 14. | Precautions in dead movement of rake. | |
| 15. | Function of various safety equipment VCD, Fog safe/Fog Pass device, KAVACH, RDAS, AWS etc. | |
| 16. | RTIS equipment, usage and precautions. | |
| 17. | Cab Changing Procedure. | |
| 18. | Case Studies of various accident – Role of LP | 1 day |

**Field Training / Footplate** **2 days**

- Field Training / Footplate under Training Instructor/Chief Loco Inspector.

**MPM-4**

**DESCRIPTION** **DURATION**
**EMU/MEMU Pneumatic Module** **2 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 26. | Overview on braking system of three phase EMUs | 2days |
| 27. | Working of EP, Auto, dynamic and parking brake on three phase EMUs | |
| 28. | Overview on braking system of conventional EMU | |
| 29. | Working of EP, Auto and parking on conventional locomotives | |
| 30. | Action to be taken in case of MR pressure not build up | |
| 31. | Action to be taken in case of BP pressure not build up | |
| 32. | Action to be taken in case of BP pressure not maintaining | |
| 33. | Pneumatically/Electric isolation of brakes. | |
| 34. | Operations and control of pneumatic system from HMI | |
| 35. | Releasing of parking/hand brake in case of brake binding. | |
| 36. | Location of air dryer and isolating procedure | |
| 37. | Procedure of various tests & checks – joint brake power testing | |
| 38. | Discussion of various pneumatic failures and remedies | |

**DESCRIPTION**
**Transportation, First Aid & Fire Fighting**

**DURATION**
**12days**

## CONTENTS

| Sno. | Subject | Duration in days |
|---|---|---|
| 44. | Brief description of GR & SR pertaining to LOCO PILOTs. Correction slips. | 12 days |
| 45. | Summarizing of Important definitions such as Adequate. Distance, Block Section, Isolation, Faulting mark, Running Line, Axle counter, Station section. Authority to proceed and Station working rules | |
| 46. | Light engine, Relief Engine, Banking Engine, Train Engine, Shunting Engine, etc | |
| 47. | Personal equipment of LOCO PILOTS | |
| 48. | Stations<br>• Kinds and classification of stations minimum essential signals etc. for each station.<br>• Block and non-Block stations.<br>• Block overlap.<br>• Yard Layout, etc. | |
| 49. | System of working –<br>• Absolute Block System<br>• Automatic Block System,<br>• Train following System, etc | |
| 50. | Signals –<br>• Necessity and Evaluation of signals,<br>• classification and kinds of signals,<br>• Approach and Departure signals permissive signals, subsidiary signals, etc. | |
| 51. | Defective signals<br>• Defective signal, Automatic signals, Semi-automatic and Gate signals, manual signals.<br>• Action and rules for passing defective signals of different types.<br>• Practical tour for sight in Yard. | |
| 52. | Engineering signals –<br>• Engineering Signals. Their placement.<br>• Permanent and Temporary Engineering Cautions.<br>• Brief of Chat Section.<br>• Speeds. | |
| 53. | Isolation | |
| 54. | Different authorities/forms | |
| 55. | Whistle codes<br>What is a Whistle Code? When and how is to be used? Precautions before starting a Train from a station (originating) or Yard right signals. | |
| 56. | Abnormal working –<br>• Rules for working of trains – single line working on Double line in absolute and automatic Block Sections.<br>• Total failure Communication. | |

| | | |
|---|---|---|
| | • Rules for sending relief engine from right line and wrong line.<br>• Precautions to be observed during abnormal working in different cases. | |
| 57. | Shunting –<br>• Kinds of shunting.<br>• Precautions for safe and smooth shunting.<br>• Rules for shunting in Yard, coaching Yard and "B" class stations.<br>• Model Room training. | |
| 58. | • Train operation in fog | |
| 59. | Protection Rules | |
| 60. | Exchange of Signal & its significance | |
| 61. | Accident –<br>• Duties of Loco Pilot in case of accident.<br>• Mid Section derailments. Engine failures etc.<br>• Over shooting<br>• Protection in block section in case of accidents.<br>• Use of detonators | |
| 62. | • Duties in case of fire in train/loco. | |
| 63. | Identifying and handling of various types of fire extinguishers, precautions to be taken while extinguishing fire, Render first aid to the burn injuries, first aid to persons affected by suffocation, communication, etc. | |

**MPM-6**

**DESCRIPTION** **DURATION**
**C&W and Air Brake Module &** **1day**
**Vande-Bharat type train set, Push-Pull, etc.**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 52. | Different types of coaching stock - Nomenclature | 1day |
| 53. | Air brake system - working method with diagrams, parts & functions, working single pipe and Twin pipe air brake system. Pneumatic brake - working principle, BMBS and APS, Hand brake in rolling stock. | |
| 54. | Brake power certificates - kinds - Coaching trains, percentage of brake power required inmixed/passenger trains, Alarm chain pulling - resetting & isolation, FIBA, Fire Detection(VESDA), etc | |
| 55. | Continuity test, cases of brake binding and releasing, Flat tire detection and action to be taken, isolation of distributor valve, isolation of bogie pneumatically, etc. | |
| 56. | LHB coach, Hybrid coach, conventional coach, Hot axle symptoms and action to be taken. | |
| 57. | Brake continuity test and its importance | |
| 58. | Overview of Vande-Bharat type train set, Push-Pull, etc. | |

**MPM-7**

**DESCRIPTION**
**TrD Module**

**DURATION**
**1 day**

**CONTENTS**

| Sno. | Subject | Duration in days (Sessions) |
|---|---|---|
| 16. | Introduction to TrD | 1day |
| 17. | Brief of Power Supply arrangement. | |
| 18. | Cantilever - Its parts | |
| 19. | Use of ATD in OHE | |
| 20. | Neutral Section. | |
| 21. | Different type of TrD boards & description | |
| 22. | Panto Entanglement - it's causes | |
| 23. | Instruction of Loco Pilots to in case of tripping of OHE | |
| 24. | Duties of Loco Pilot during OHE unusual and Break Down | |

**MPM-8**

**DESCRIPTION**
**Case Studies**

**DURATION**
**1½ days**

**CONTENTS**

Case Studies of various accidents and lessons. (Particularly focusing on scenarios where prompt actions by Motormen could have averted the incidents or accidents.).

**MPM-10**

**DESCRIPTION**
**Review & Exam**

**DURATION**
**½ day**

**CONTENTS**

**Review & Exam**

**DESCRIPTION**
**Train handling on line**

**DURATION**
**12days**

After the completion of a 36-day training at Traction Training Centers, trainees shall be directed to their respective divisions for a 12-day 'Train Handling on Line,' and shall be booked as Co-Motorman in EMU/MEMU .

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**Instruction for training centers& Instructors**

- During classroom training, it is preferable to use audio-visual aids with digital content.
- In-depth knowledge of various circuits, such as electrical and pneumatic circuits, etc is not required.
- The training should primarily emphasize the activities and responsibilities of the LPP/Motorman in their day-to-day operations with EMU/MEMU trains.
- During subject-specific classroom training, it is essential to emphasize discussions on safety cases, including SPAD, accidents, derailments, collisions, side collisions, and incidents involving entering unwired/sand humps. This emphasis should highlight how adherence to proper procedures or correct actions by the LPP/Motorman on the subject could have effectively prevented such cases.

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**Motorman Refresher Course**

**Course Code - MRM**

| Module no. | Training Course | Duration in days |
|---|---|---|
| **MRM-1** | EMU/MEMU Module | 2 |
| **MRM-2** | Driving Module | 2 |
| **MRM-3** | Safety & Operation Module | 2 |
| **MRM-4** | Pneumatic Module | 2 |
| **MRM-5** | Transportation Module - Transportation, First Aid, Fire Fighting, | 6 |
| **MRM-6** | C&W and Air Brake Module & overview of Vande Bharat type train set, Push-Pull etc. | ½ |
| **MRM-7** | TrD module | ½ |
| **MRM-8** | Simulator Training | 1 |
| **MRM-9** | Case Studies | 2 |
| | **Total days** | **18** |

**MRM-1**

**DESCRIPTION**
**EMU/MEMU Module**

**DURATION**
**2 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 7. | Summarizing the general description of electric Multiple Unit (EMU/MEMU) – Three phase & conventional EMU – composition, types of coaches – MC, TC (driving, non driving), speed, Tractive effort, etc. | 2 Days |
| 8. | Brief description on safety items - undergear safety fittings & intactness (cattle guard, rail guard, coupling, axle box, battery box, air suspension bellow, switch gear, tap-changer, other bogie/under gear equipment which needs to be checked on line, moisture draining locations, location of lubrication points, etc. – use of audio-visual digital content is recommended. | |
| 9. | Location and functions of various types of relays, switches, MCBs, fuses, and other electrical equipment, along with their normal positions, in LT/HT compartment - need to be regularly checked and operated during train operations - use of audio-visual digital content is recommended. | |
| 10. | Detailed description of CAB items, switches/controls to be operated by LP. Understanding symbols in HMI and various operations in HMI like brake release etc. | |
| 11. | Safety items to be checked while taking over charge of train. | |
| 12. | Model room/Field demonstration | |

**MRM-2**

**DESCRIPTION**
**Driving Module**

**DURATION**
**2 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 57. | Proper Self call out of signal.<br>• Demonstration of procedure of self call out of signal as per instructions laid down<br>This should be demonstrated by each LP multiple times. | 2 days |
| 58. | Energizing (cab occupation) and De energizing an EMU rake. | |
| 59. | Brake continuity, Brake feel & brake power test<br>• Procedure for carry out of brake continuity test and | |

| Sno. | Subject | Duration in days |
|---|---|---|
| | locations/situations where carry out.<br>• Importance of brake feel test & brake power for safety of trains.<br>• Procedure for carry out brake feel test & brake power test. | |
| 60. | Instructions for Joint Brake Power Testing as per ACTM | |
| 61. | Observance of permissible speed, permanent, & temporary speed restrictions, etc. | |
| 62. | Punctuality of coaching trains, Working time table Maximum permissible speed, etc. | |
| 63. | Description of dynamic/regenerative braking procedure and its benefits. | |
| 64. | Use of Cruise Control and precaution while using it. | |
| 65. | Use of ENS, PIS configuration. | |
| 66. | Effect on regenerative/dynamic brake upon braking through EP/Auto brakes and no tension of OHE. | |
| 67. | Description of auto regression feature in case of full service brake application and emergency brake application. | |
| 68. | Good driving technique, instructions for train operation, alertness, etc. | |
| 69. | Train operation in ghat sections | |
| 70. | Duties of LP defined in ACTM. | |
| 71. | Description of tools provided to LP and provided on Rake | |
| 72. | • Observance of caution order, Permanent & temporary speed restrictions, engineering boards, OHE boards, coasting boards, gradient boards, etc.<br>• Sharp lookout on signal, track, OHE & adjacent line, Tress passers etc.<br>• ADD and ORD of panto. | |
| 73. | Use of Flasher light and actions to be taken when flasher light of opposite direction train is glowing. | |
| 74. | Stopping of coaching train with position of coach display board/stop board provided at platform. | |
| 75. | Operation of passenger related amenities – Lights, Fans, Ventilation, Announcements, PIS etc. | |

**MRM-3**

**DESCRIPTION**
**Safety & Operation Module**

**DURATION**
**2 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 19. | Types of faults, reading method fault in HMI, status code and reading of troubleshooting directories. | 2 days |
| 20. | Working with isolation of different equipment in rake | |
| 21. | Bell codes, Talkback, Fault indication lamps. | |

| Sno. | Subject | Duration in days |
|---|---|---|
| 22. | Function & use of BPEMS switch. | |
| 23. | Rescue Driving Mode. | |
| 24. | Train operation in case of Head light defective. | |
| 25. | Train operation in case of SPM defective. | |
| 26. | Train operation in case of HMI defective. | |
| 27. | Train Operation with deflated/punctured bellow. | |
| 28. | Stabling of rake & securing to avoid rolling down/rolling back. | |
| 29. | Action to be taken train stalled on gradient | |
| 30. | Actions to be taken in case of ACP. | |
| 31. | Actions to be taken & inspection of rake in case of CRO. | |
| 32. | Precautions in dead movement of rake. | |
| 33. | Function of various safety equipment VCD, Fog safe/Fog Pass device, KAVACH, RDAS, AWS etc. | |
| 34. | RTIS equipment, usage and precautions. | |
| 35. | Cab Changing Procedure. | |

**MRM-4**

**DESCRIPTION**
**EMU/MEMU Pneumatic Module**

**DURATION**
**2 days**

## CONTENTS

| Sno. | Subject | Duration in days |
|---|---|---|
| 39. | Overview on braking system of three phase EMUs | 2 days |
| 40. | Working of EP, Auto, dynamic and parking brake on three phase EMUs | |
| 41. | Overview on braking system of conventional EMU | |
| 42. | Working of EP, Auto and parking on conventional locomotives | |
| 43. | Action to be taken in case of MR pressure not build up | |
| 44. | Action to be taken in case of BP pressure not build up | |
| 45. | Action to be taken in case of BP pressure not maintaining | |
| 46. | Pneumatically/Electric isolation of brakes. | |
| 47. | Operations and control of pneumatic system from HMI | |
| 48. | Releasing of parking/hand brake in case of brake binding. | |
| 49. | Location of air dryer and isolating procedure | |
| 50. | Procedure of various tests & checks – joint brake power testing | |
| 51. | Discussion of various pneumatic failures and remedies | |

**MRM-5**

**DESCRIPTION**
**Transportation, First Aid & Fire Fighting**

**DURATION**
**6 days**

**CONTENTS**

| Sno. | Subject | Duration in days (Sessions) |
|---|---|---|
| 64. | Brief description of GR & SR pertaining to LOCO PILOTs. Correction slips. | 6 days |
| 65. | Summarizing of Important definitions such as Adequate. Distance, Block Section, Isolation, Faulting mark, Running Line, Axle counter, Station section. Authority to proceed and Station working rules | |
| 66. | Light engine, Relief Engine, Banking Engine, Train Engine, Shunting Engine, etc | |
| 67. | Personal equipment of LOCO PILOTS | |
| 68. | Stations<br>• Kinds and classification of stations minimum essential signals etc. for each station.<br>• Block and non-Block stations.<br>• Block overlap.<br>• Yard Layout, etc. | |
| 69. | System of working –<br>• Absolute Block System<br>• Automatic Block System,<br>• Train following System, etc | |
| 70. | Signals –<br>• Necessity and Evaluation of signals,<br>• classification and kinds of signals,<br>• Approach and Departure signals permissive signals, subsidiary signals, etc. | |
| 71. | Defective signals<br>• Defective signal, Automatic signals, Semi-automatic and Gate signals, manual signals.<br>• Action and rules for passing defective signals of different types.<br>• Practical tour for sight in Yard. | |
| 72. | Engineering signals –<br>• Engineering Signals. Their placement.<br>• Permanent and Temporary Engineering Cautions.<br>• Brief of Chat Section.<br>• Speeds. | |
| 73. | Isolation | |
| 74. | Different authorities/forms | |
| 75. | Whistle codes<br>What is a Whistle Code? When and how is to be used?<br>Precautions before starting a Train from a station (originating) or Yard right signals. | |
| 76. | Abnormal working –<br>• Rules for working of trains – single line working on | |

| | | |
|---|---|---|
| | Double line in absolute and automatic Block Sections.<br>• Total failure Communication.<br>• Rules for sending relief engine from right line and wrong line.<br>• Precautions to be observed during abnormal working in different cases. | |
| 77. | Shunting –<br>• Kinds of shunting.<br>• Precautions for safe and smooth shunting.<br>• Rules for shunting in Yard, coaching Yard and "B" class stations.<br>• Model Room training. | |
| 78. | • Train operation in fog | |
| 79. | Protection Rules | |
| 80. | Exchange of Signal & its significance | |
| 81. | Accident –<br>• Duties of Loco Pilot in case of accident.<br>• Mid Section derailments. Engine failures etc.<br>• Over shooting<br>• Protection in block section in case of accidents.<br>• Use of detonators | |
| 82. | • Duties in case of fire in train/loco. | |
| 83. | Identifying and handling of various types of fire extinguishers, precautions to be taken while extinguishing fire, Render first aid to the burn injuries, first aid to persons affected by suffocation, communication, etc. | |

**MRM-6**

**DESCRIPTION**
**C&W and Air Brake Module &**
**Vande-Bharat type train set, Push-Pull, etc.**

**DURATION**
**½ day**

## CONTENTS

| Sno. | Subject | Duration in days |
|---|---|---|
| 59. | Different types of coaching stock - Nomenclature | ½ day |
| 60. | Air brake system - working method with diagrams, parts & functions, working single pipe and Twin pipe air brake system. Pneumatic brake - working principle, BMBS and APS, Hand brake in rolling stock. | |
| 61. | Brake power certificates - kinds - Coaching trains, percentage of brake power required in mixed/passenger trains, Alarm chain pulling - resetting & isolation, FIBA, Fire Detection(VESDA), etc | |
| 62. | Continuity test, cases of brake binding and releasing, Flat tire detection and action to be taken, isolation of distributor valve, isolation of bogie pneumatically, etc. | |
| 63. | LHB coach, Hybrid coach, conventional coach, Hot axle symptoms and action to be taken. | |
| 64. | Brake continuity test and its importance | |
| 65. | Overview of Vande-Bharat type train set, Push-Pull, etc. | |

**MRM-7**

**DESCRIPTION** **DURATION**

**TrD Module** **½ day**

## CONTENTS

| Sno. | Subject | Duration in days |
|---|---|---|
| 25. | Introduction to TrD | ½ day |
| 26. | Brief of Power Supply arrangement. | |
| 27. | Cantilever - Its parts | |
| 28. | Use of ATD in OHE | |
| 29. | Neutral Section. | |
| 30. | Different type of TrD boards & description | |
| 31. | Panto Entanglement - it's causes | |
| 32. | Instruction of Loco Pilots to in case of tripping of OHE | |
| 33. | Duties of Loco Pilot during OHE unusual and Break Down | |

**MRM-8**

| **DESCRIPTION** | **DURATION** |
|---|---|
| **Simulator Training & Tripping Car** | **1 day** |

## CONTENTS

**Simulator Training** – simulator training may be imparted to develop good driving skills on different type of terrains, acceleration & deacceleration, controlling of speed, response to unusual scenarios etc.

**Tripping car –** Practical training of troubleshooting used TSD**.**

**Note:** In case of non availability of Simulator, handling may be performed under supervision of CLI.

## Conversion Training Course ALP – Diesel to Electric Traction

**Course Code -ACEM**

| Sub-Module no. | Training Content | Duration in days |
|---|---|---|
| **ACEM-1** | Loco Module | **4** |
| | **Field Training / Footplate** | **2** |
| **ACEM-2** | Loco Operation Module | **3** |
| | **Field Training / Footplate** | **3** |
| **ACEM-3** | TrD Module | **0.5** |
| **ACEM-4** | Loco Pneumatic Module | **1** |
| | **Field Training / Footplate** | **3** |
| **ACEM-5** | Simulator Training & Manual Control of GR & EEC in tripping car | **1** |
| | Final Exam | **0.5** |
| | **Total days** | **18** |

**ACEM-1**

**DESCRIPTION**
**Loco Module**

**DURATION**
**4 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 32. | Precaution/rules to be followed in electrified zone/electric locomotive<br>• Safety precautions related to 25kV OHE<br>• Safety precautions during corridor / machine room inspection on moving loco | 4 days |
| 33. | Principle of electric locomotives - three phase & conventional electric locomotives | |
| 34. | Brief on basic electric circuitry of three phase & conventional locomotives. | |
| 35. | General layout of electric locomotives – three phase & conventional loco – brief overview of loco sections viz. cab, corridor, machine room, under frame, roof equipment & pantograph, buffer, coupling, cattle guard, Headlight, Flasher light, Marker light, gauges & meters in cab, RS valve (emergency brake valve), other apparatus in cab, etc. | |
| 36. | Locations of safety & important equipment on locomotive<br>• Brief description on safety items & its checking procedure (how to check online) - undergear safety fittings & intactness (cattle guard, rail guard, sand box & sander pipes, CBC & TSC coupling, axle box, battery box, other bogie/under gear equipment which needs to be checked on line, moisture draining locations, | |

| Sno. | Subject | Duration in days |
|---|---|---|
| | location of lubrication points, etc. | |
| 37. | Location and functions of various types of relays, switches, MCBs, fuses, and other electrical equipment, along with their normal positions, need to be regularly checked and operated during train operations | |
| 38. | Checking of stabled locomotive before energizing<br>• Standing on line & under OHE, oil & lubrication points, availability of fire extinguishers and wooden wedges, etc. | |
| 39. | • Familiarization with Loco log book and description of tools & equipment provided to loco crew | |
| 40. | Location of fixed & portable fire extinguishers and procedure to use fixed fire extinguishers | |

**Field Training / Footplate** **2 days**

- Field Training / Footplate under Training Instructor/Chief Loco Inspector. Practical demonstration and hands on training for learning of loco equipment location, checking procedure of loco before energizing the loco, etc.

**ACEM-2**

**DESCRIPTION** **DURATION**
**Loco Operation Module** **3 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 46. | Energizing, De-energizing & stabling of locomotive & cab changing procedure<br>• Loco energizing sequence/procedure for three phase & conventional locomotives.<br>• Cab changing procedure/sequence<br>• Loco shunting down procedure/sequence and stabling of loco (including securing of loco using hand brake, parking brake, wooden wedges, etc). | **3 days** |
| 47. | EEC & GR manual operation in Conventional loco. | |
| 48. | Wedging of different type of relays & contactors in conventional locomotive | |
| 49. | Flasher light – its checking procedure & usage | |
| 50. | VCD act on line | |
| 51. | Headlight not working | |
| 52. | Horn not working | |
| 53. | Speedometer not working | |
| 54. | BPEMS switch & usage | |
| 55. | Operation of PTDC in three phase locomotive | |
| 56. | Throttle not responding | |

| Sno. | Subject | Duration in days |
|---|---|---|
| 57. | Harmonic filter isolation | |
| 58. | Working from rear cab | |
| 59. | Fire in locomotive | |
| 60. | Function of various safety equipment VCD, Fogsafe/FogPass device, KAVACH, RDAS, etc. | |
| 61. | RTIS equipment, usage and precautions. | |
| 62. | Types of loco faults, reading method DDS, status code and reading of troubleshooting directories. | |
| 63. | Reading of Trouble shooting directory of various three phase & conventional locomotives. | |
| 64. | Precautions to be followed in case of any equipment of loco is isolated (as per TSD). | |
| 65. | Procedure of grounding / un-grounding of loco | |
| 66. | Action to be taken in case of panto broken/entangled. | |
| 67. | Communicating to TLC or other official regarding information of any abnormality and assistance required (protocol to be followed like train no., loco no., section, between stations, km no., nature of abnormality, assistance required, etc.) | |

**Field Training / Footplate** **3 days**

- Field Training / Footplate under Training Instructor/Chief Loco Inspector. Practical demonstration and hands on training for learning of sequences of loco energizing & deenergizing, ground/un-grounding, etc.

**ACEM-3**

**DESCRIPTION** **DURATION**
**TrD Module** **½ day**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 15. | Brief Knowledge of TrD<br>• Brief overview of OHE system<br>• Familiarization with OHE equipment for identification (including cantilever assembly) | ½ day |
| 16. | Procedure of passing neutral section<br>• Description & usage of neutral section related boards (500 meter board, 250 meter board, DJ open board, DJ close board).<br>• Precaution to be taken before& after neutral section. | |
| 17. | Provision of Sigma Board& usage. | |
| 18. | Communication with TPC/TLC in case of panto broken or OHE hanging. | |
| 19. | Action to be taken in case of panto broken/entangled. | |
| 20. | Roof inspection & isolation of pantograph from HPT link and securing of broken panto, etc. | |

| | | |
|---|---|---|
| 21. | Duties of during OHE Break Down. | |

**ACEM-4**

**DESCRIPTION** **DURATION**
**Loco Pneumatic Module** **1 day**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 52. | Overview on braking system of three phase locomotive | 1day |
| 53. | Overview on braking system of conventional locomotive | |
| 54. | Action to be taken in case of MR pressure not build up | |
| 55. | Action to be taken in case of BP pressure not build up | |
| 56. | Action to be taken in case of FP pressure not build up | |
| 57. | Action to be taken in case of BP pressure not maintaining | |
| 58. | Miscellaneous failures of air brake of locomotive | |
| 59. | Pneumatically isolation of bogie | |
| 60. | Releasing of parking/hand brake in case of brake binding in locomotive | |
| 61. | Overview on operation of PTDC in three phase locomotive | |
| 62. | Location of air dryer and isolating procedure | |
| 63. | Actions to be taken in case of BP/ FP angle cock broken due to CRO | |
| 64. | Procedure of various tests & checks related to loco brake system like CP efficiency test, BP & FP leak test, train leak test, Loco brake power test, etc. | |

**Field Training / Footplate** **3 days**

- Field Training / Footplateunder Training Instructor/Chief Loco Inspector. Practical demonstration of subjects related to brake system of electric locomotives and hands on training for learning of procedures, sequences, etc.

**ACEM-5**

**DESCRIPTION** **DURATION**
**Simulator Training** **1 day**
& Tripping car

**CONTENTS**

Simulator Training &practical training of trouble shooting through TSD, manual operation of GR & EEC etc in tripping car.

| DESCRIPTION | DURATION |
| --- | --- |
| **Review & Exam** | **½ day** |

## CONTENTS

**Review & Exam**

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**Instruction for training centers& Instructors**

- During classroom training, it is preferable to use audio-visual aids with digital content.
- In-depth knowledge of various circuits, such as electrical and pneumatic circuits, etc is not required.
- The training should primarily emphasize the activities and responsibilities of the LP/ALP in their day-to-day operations with locomotives/trains.
- While footplating as Co-ALP, the trainee should act like an observer only. He/she shall not interfere with activities of crew. He/she shall **NOT** be held responsible for lacunae in any routine/defined duties of ALP in case of any untoward incident, etc.
- During subject-specific classroom training, it is essential to emphasize discussions on safety cases, including SPAD, accidents, derailments, collisions, side collisions, and incidents involving entering unwired/sand humps. This emphasis should highlight how adherence to proper procedures or correct actions by the LP/ALP on the subject could have effectively prevented such cases.

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**Conversion Training Course LP – Diesel to Electric Traction**

**Course Code -PCEM**

| Module no. | Training Content | Duration in days |
|---|---|---|
| **PCEM-1** | Loco Module | **5** |
| | **Field Training / Footplate** | **3** |
| **PCEM-2** | Loco Operation Module | **4** |
| | **Field Training / Footplate** | **3** |
| **PCEM-3** | TrD Module | **0.5** |
| **PCEM-4** | Loco Pneumatic Module | **3** |
| | **Field Training / Footplate** | **3** |
| **PCEM-5** | Simulator Training & Manual Control of GR & EEC in tripping car | **2** |
| | Final Exam | **0.5** |
| | **Total days** | **24** |

**PCEM-1**

**DESCRIPTION**
**Loco Module**

**DURATION**
**5 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 41. | Precaution/rules to be followed in electrified zone/electric locomotive<br>• Safety precautions related to 25kV OHE<br>• Safety precautions during corridor / machine room inspection on moving loco | 5 days |
| 42. | Principle of electric locomotives - three phase & conventional electric locomotives | |
| 43. | Brief on basic electric circuitry of three phase & conventional locomotives (including WAG12). | |
| 44. | General layout of electric locomotives – three phase & conventional loco – brief overview of loco sections viz. cab, corridor, machine room, under frame, roof equipment & pantograph, buffer, coupling, cattle guard, Headlight, Flasher light, Marker light, gauges & meters in cab, RS valve (emergency brake valve), other apparatus in cab, etc. | |
| 45. | Location and functions of various types of relays, switches, MCBs, fuses, and other electrical equipment, along with their normal positions, need to be regularly checked and operated during train operations | |
| 46. | Checking of stabled locomotive before energizing<br>• Standing on line & under OHE, oil & lubrication points, availability of fire extinguishers and wooden wedges, etc. | |
| 47. | • Familiarization with Loco log book and description of tools & equipment provided to loco crew | |
| 48. | Location of fixed & portable fire extinguishers and procedure to use fixed fire extinguishers | |

**Field Training / Footplate** **3 days**

- Field Training / Footplate training under Training Instructor/Chief Loco Inspector. Practical demonstration and hands on training for learning of loco equipment location, checking procedure of loco before energizing the loco, etc.

**PCEM-2**

**DESCRIPTION**
**Loco Operation Module**

**DURATION**
**4 days**

## CONTENTS

| Sno. | Subject | Duration in days |
|---|---|---|
| 68. | Energizing, De-energizing & stabling of locomotive & cab changing procedure<br>• Loco energizing sequence/procedure for three phase & conventional locomotives.<br>• Cab changing procedure/sequence<br>• Loco shunting down procedure/sequence and stabling of loco (including securing of loco using hand brake, parking brake, wooden wedges, etc). | 4 days |
| 69. | EEC & GR manual operation in Conventional loco. | |
| 70. | Wedging of different type of relays & contactors in conventional locomotive | |
| 71. | Flasher light – its checking procedure & usage | |
| 72. | VCD act on line | |
| 73. | Headlight not working | |
| 74. | Horn not working | |
| 75. | Speedometer not working | |
| 76. | BPEMS switch & usage | |
| 77. | Operation of PTDC in three phase locomotive | |
| 78. | Throttle not responding | |
| 79. | Harmonic filter isolation | |
| 80. | Working from rear cab | |
| 81. | Fire in locomotive | |
| 82. | Function of various safety equipment VCD, Fogsafe/FogPass device, KAVACH, RDAS, etc. | |
| 83. | RTIS equipment, usage and precautions. | |
| 84. | Types of loco faults, reading method DDS, status code and reading of troubleshooting directories. | |
| 85. | Reading of Trouble shooting directory of various three phase & conventional locomotives. | |
| 86. | Precautions to be followed in case of any equipment of loco is isolated (as per TSD). | |
| 87. | Procedure of grounding / un-grounding of loco | |
| 88. | Action to be taken in case of panto broken/entangled. ORD feature. | |
| 89. | Communicating to TLC or other official regarding information of any abnormality and assistance required (protocol to be followed like train no., loco no., section, between stations, km no., nature of abnormality, assistance required, etc.) | |

**Field Training / Footplate** **3 days**

- Field Training / Footplate under Training Instructor/Chief Loco Inspector.

Practical demonstration and hands on training for learning of sequences of loco energizing & deenergizing, ground/un-grounding, etc.

**PCEM -3**

**DESCRIPTION**
**TrD Module**

**DURATION**
**½ day**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 22. | Brief Knowledge of TrD<br>• Brief overview of OHE system<br>• Familiarization with OHE equipment for identification (including cantilever assembly) | ½ day |
| 23. | Procedure of passing neutral section<br>• Description & usage of neutral section related boards (500 meter board, 250 meter board, DJ open board, DJ close board).<br>• Precaution to be taken before & after neutral section. | |
| 24. | Provision of Sigma Board & usage. | |
| 25. | Communication with TPC/TLC in case of panto broken or OHE hanging. | |
| 26. | Action to be taken in case of panto broken/entangled. | |
| 27. | Roof inspection & isolation of pantograph from HPT link and securing of broken panto, etc. | |
| 28. | Duties of during OHE Break Down. | |

**PCEM -4**

**DESCRIPTION**
**Loco Pneumatic Module**

**DURATION**
**3days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 65. | Overview on braking system of three phase locomotive | 3 days |
| 66. | Overview on braking system of conventional locomotive | |
| 67. | Action to be taken in case of MR pressure not build up | |
| 68. | Action to be taken in case of BP pressure not build up | |
| 69. | Action to be taken in case of FP pressure not build up | |
| 70. | Action to be taken in case of BP pressure not maintaining | |
| 71. | Miscellaneous failures of air brake of locomotive | |
| 72. | Pneumatically isolation of bogie | |
| 73. | Releasing of parking/hand brake in case of brake binding in locomotive | |

| Sno. | Subject | Duration in days |
|---|---|---|
| 74. | Overview on operation of PTDC in three phase locomotive | |
| 75. | Location of air dryer and isolating procedure | |
| 76. | Actions to be taken in case of BP/ FP angle cock broken due to CRO | |
| 77. | Procedure of various tests & checks related to loco brake system like CP efficiency test, BP & FP leak test, train leak test, Loco brake power test, etc. | |

**Field Training / Footplate** **3 days**

- Field Training / Footplate under Training Instructor/Chief Loco Inspector. Practical demonstration of subjects related to brake system of electric locomotives and hands on training for learning of procedures, sequences, etc.

**PCEM -5**

**DESCRIPTION** **DURATION**
**Simulator Training** **2 days**
& Tripping car

**CONTENTS**

Simulator Training & practical training of trouble shooting through TSD, manual operation of GR & EEC etc in tripping car.

**DESCRIPTION** **DURATION**
**Review & Exam** **½ day**

**CONTENTS**

**Review & Exam**

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**<u>Instruction for training centers & Instructors</u>**

- During classroom training, it is preferable to use audio-visual aids with digital content.
- In-depth knowledge of various circuits, such as electrical and pneumatic circuits, etc is not required.
- The training should primarily emphasize the activities and responsibilities of the LP/ALP in their day-to-day operations with locomotives/trains.

- While footplating the trainee should act like an observer only. He/she shall not interfere with activities of crew. He/she shall **NOT** be held responsible for lacunae in any routine/defined duties of LP in case of any untoward incident, etc.
- During subject-specific classroom training, it is essential to emphasize discussions on safety cases, including SPAD, accidents, derailments, collisions, side collisions, and incidents involving entering unwired/sand humps. This emphasis should highlight how adherence to proper procedures or correct actions by the LP/ALP on the subject could have effectively prevented such cases.

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**Conversion Training Course ALP – Electric to Diesel Traction**

**Course Code – ACDM**

| Module no. | Training Content | Duration in days |
|---|---|---|
| **ACDM-1** | Loco Module | **4** |
| | **Field Training / Footplate** | **2** |
| **ACDM-2** | Loco Operation Module | **3** |
| | **Field Training / Footplate** | **3** |
| **ACDM-3** | TrD Module | **0.5** |
| **ACDM-4** | Loco Pneumatic Module | **1** |
| | **Field Training / Footplate** | **3** |
| **ACDM-5** | Simulator Training | **1** |
| | Final Exam | **0.5** |
| | **Total days** | **18** |

**ACDM-1**

**DESCRIPTION** **DURATION**
**Loco Module** **4 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 78. | Characteristics of different type of diesel locomotives | 4 days |
| 79. | Basic principle of Diesel locomotives | |
| 80. | General description of different type of Diesel locomotives | |
| 81. | Familiarization of cab layouts & gauges and apparatus there in | |
| 82. | Description of various sections and circuits of Diesel locomotives | |
| 83. | Brief overview of diesel loco fuel oil, water cooling, lubrication systems & capacities | |
| 84. | Locomotive operating instructions, Safety items of loco and Safety equipment provided to running staff and on loco. | |
| 85. | Examination of locomotive' while turning out from Shed taking over from the previous crew including Familiarization with Repair book, Trip Card, Joint Guard and Loco Pilot Report | |

**Field Training / Footplate** **2 days**

- Field Training / Footplate under Training Instructor/Chief Loco Inspector.

**ACDM-2**

**DESCRIPTION** **DURATION**
**Loco Operation Module** **3 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Different operating procedures & instructions for diesel loco operation | 3 days |
| 2. | Loco starting / shutting down sequences | |
| 3. | Different failures of Diesel locomotives and troubleshooting | |
| 4. | Stabling of locomotives | |
| 5. | Safety equipment provided on locomotives and instructions for crew | |
| 6. | Description and functionality of APU – role of crew. | |
| 7. | Precaution/rules to be followed in electrified zone while working on diesel locomotive.<br>• Safety precautions related to 25kV OHE | |

**Field Training / Footplate** **3 days**

Field Training / Footplate under Training Instructor/Chief Loco Inspector. Practical demonstration and hands on training for learning of sequences of loco starting & shutting down, stabling, etc.

**ACDM-3**

**DESCRIPTION** **DURATION**
**TrD Module** **½ day**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 29. | Brief Knowledge of TrD<br>• Brief overview of OHE system<br>• Familiarization with OHE equipment for identification (including cantilever assembly) | ½ day |
| 30. | Provision of Sigma Board & usage. | |
| 31. | Communication with TPC/TLC in case of panto broken or OHE hanging. | |
| 32. | Action to be taken in case of panto broken/entangled. | |
| 33. | Roof inspection & isolation of pantograph from HPT link and securing of broken panto, etc. | |
| 34. | Duties of during OHE Break Down. | |

**ACEM-4**

**DESCRIPTION** **DURATION**
**Loco Pneumatic Module** **1 day**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Overview on braking system of different type of Diesel locomotives | 1 day |
| 2. | Action to be taken in case of MR pressure not build up | |
| 3. | Action to be taken in case of BP pressure not build up | |
| 4. | Action to be taken in case of FP pressure not build up | |
| 5. | Action to be taken in case of BP pressure not maintaining | |
| 6. | Miscellaneous failures of air brake of locomotive | |
| 7. | Pneumatically isolation of bogie | |
| 8. | Releasing of parking/hand brake in case of brake binding in locomotive | |
| 9. | Location of air dryer and isolating procedure | |
| 10. | Actions to be taken in case of BP/ FP angle cock broken due to CRO | |
| 11. | Procedure of various tests & checks related to loco brake system like CP efficiency test, BP & FP leak test, train leak test, Loco brake power test, etc. | |
| 12. | Discussion on loco brake system failures & troubleshooting | |

**Field Training / Footplate** **3 day**

- Field Training / Footplate under Training Instructor/Chief Loco Inspector. Practical demonstration of subjects related to brake system of Diesel locomotives and hands on training for learning of procedures, sequences, etc.

**ACEM-5**

**DESCRIPTION** **DURATION**
**Simulator Training** **1 days**

**CONTENTS**

Simulator Training.

**DESCRIPTION** **DURATION**
**Review & Exam** **½ day**

## CONTENTS

**Review & Exam**

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**Instruction for training centers & Instructors**

- During classroom training, it is preferable to use audio-visual aids with digital content.
- In-depth knowledge of various circuits, such as electrical and pneumatic circuits, etc is not required.
- The training should primarily emphasize the activities and responsibilities of the LP/ALP in their day-to-day operations with locomotives/trains.
- While footplating as Co-ALP, the trainee should act like an observer only. He/she shall not interfere with activities of crew. He/she shall **NOT** be held responsible for lacunae in any routine/defined duties of ALP in case of any untoward incident, etc.
- During subject-specific classroom training, it is essential to emphasize discussions on safety cases, including SPAD, accidents, derailments, collisions, side collisions, and incidents involving entering unwired/sand humps. This emphasis should highlight how adherence to proper procedures or correct actions by the LP/ALP on the subject could have effectively prevented such cases.

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**MRM-9**

**DESCRIPTION** **DURATION**
**Case Studies** **2 day**

## CONTENTS

| Sno. | Subject | Duration in days |
|---|---|---|
| 1. | Case Studies | 2 day |

**Instruction for training centers & Instructors**

- During classroom training, it is preferable to use audio-visual aids with digital content.
- In-depth knowledge of various circuits, such as electrical and pneumatic circuits, etc is not required.
- The training should primarily emphasize the activities and responsibilities of the LPP/Motorman in their day-to-day operations with EMU/MEMU trains.
- During subject-specific classroom training, it is essential to emphasize discussions on safety cases, including SPAD, accidents, derailments, collisions, side collisions, and incidents involving entering unwired/sand humps. This emphasis should highlight how adherence to proper procedures or correct actions by the LPP/Motorman on the subject could have effectively prevented such cases.

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**Conversion Training Course LP – Electric to Diesel Traction**

**Course Code – PCDM**

| Module no. | Training Content | Duration in days* |
|---|---|---|
| **PCDM-1** | Loco Module | **6** |
| | Field training / Footplate | **5** |
| **PCDM-2** | Loco Operation Module | **4** |
| | Field training / Footplate | **5** |
| **PCDM-3** | TrD Module | **0.5** |
| **PCDM-4** | Loco Pneumatic Module | **2** |
| | Field training / Footplate | **5** |
| **PCDM-5** | Simulator Training | **2** |
| | Final Exam | **0.5** |
| | **Total days** | **24** |

**PCDM-1**

**DESCRIPTION** **DURATION**
**Loco Module** **6 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 86. | Characteristics of different type of diesel locomotives | 6 days |
| 87. | Basic principle of Diesel locomotives | |
| 88. | General description of different type of Diesel locomotives | |
| 89. | Familiarization of cab layouts & gauges and apparatus there in | |
| 90. | Description of various sections of Diesel locomotives | |
| 91. | Brief overview of diesel loco fuel oil, water cooling, lubrication systems & capacities | |
| 92. | Locomotive operating instructions, Safety items of loco and Safety equipment provided to running staff and on loco. | |
| 93. | Examination of locomotive' while turning out from Shed taking over from the previous crew including Familiarization with Repair book, Trip Card, Joint Guard and Loco Pilot Report | |

**Field Training / Footplate** **5 days**

- Field / Practical training under training Instructor/Chief Loco Inspector.

**PCDM-2**

**DESCRIPTION** **DURATION**
**Loco Operation Module** **4 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 8. | Different operating procedures & instructions for diesel loco operation | 4 days |
| 9. | Loco starting / shutting down sequences | |
| 10. | Different failures of Diesel locomotives and troubleshooting | |
| 11. | Stabling of locomotives | |
| 12. | Safety equipment provided on locomotives and instructions for crew | |
| 13. | Description and functionality of APU – role of crew. | |
| 14. | Precaution/rules to be followed in electrified zone while working on diesel locomotive.<br>• Safety precautions related to 25kV OHE | |
| 15. | Jerk Free starting of Trains | |
| 16. | SFC and Fuel Conservation Measures | |

**Field Training / Footplate** **5 days**

Field Training / Footplate under Training Instructor/Chief Loco Inspector. Practical demonstration and hands on training for learning of sequences of loco starting & shutting down, stabling, etc.

**PCDM-3**

**DESCRIPTION** **DURATION**
**TrD Module** **½ day**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 35. | Brief Knowledge of TrD<br>• Brief overview of OHE system<br>• Familiarization with OHE equipment for identification (including cantilever assembly) | ½ day |
| 36. | Provision of Sigma Board & usage. | |
| 37. | Communication with TPC/TLC in case of panto broken or OHE hanging. | |
| 38. | Action to be taken in case of panto broken/entangled. | |
| 39. | Roof inspection & isolation of pantograph from HPT link and securing of broken panto, etc. | |
| 40. | Duties of during OHE Break Down. | |

**PCDM -4**

**DESCRIPTION** **DURATION**

**Loco Pneumatic Module** **2 days**

**CONTENTS**

| Sno. | Subject | Duration in days |
|---|---|---|
| 13. | Overview on braking system of different type of Diesel locomotives | 1 day |
| 14. | Action to be taken in case of MR pressure not build up | |
| 15. | Action to be taken in case of BP pressure not build up | |
| 16. | Action to be taken in case of FP pressure not build up | |
| 17. | Action to be taken in case of BP pressure not maintaining | |
| 18. | Miscellaneous failures of air brake of locomotive | |
| 19. | Pneumatically isolation of bogie | |
| 20. | Releasing of parking/hand brake in case of brake binding in locomotive | |
| 21. | Location of air dryer and isolating procedure | |
| 22. | Actions to be taken in case of BP/ FP angle cock broken due to CRO | |
| 23. | Procedure of various tests & checks related to loco brake system like CP efficiency test, BP & FP leak test, train leak test, Loco brake power test, etc. | |
| 24. | Discussion on loco brake system failures & troubleshooting | |

**Field Training / Footplate** **5 days**

- Field Training / Footplate under Training Instructor/Chief Loco Inspector. Practical demonstration of subjects related to brake system of Diesel locomotives and hands on training for learning of procedures, sequences, etc.

**PCDM -5**

**DESCRIPTION** **DURATION**
**Simulator Training** **2 days**

**CONTENTS**

Simulator Training.

**DESCRIPTION** **DURATION**
**Review & Exam** **½ day**

**CONTENTS**

**Review & Exam**

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**Instruction for training centers & Instructors**

- During classroom training, it is preferable to use audio-visual aids with digital content.
- In-depth knowledge of various circuits, such as electrical and pneumatic circuits, etc is not required.
- The training should primarily emphasize the activities and responsibilities of the LP/ALP in their day-to-day operations with locomotives/trains.
- While foot plating the trainee should act like an observer only. He/she shall not interfere with activities of crew. He/she shall **NOT** be held responsible for lacunae in any routine/defined duties of LP in case of any untoward incident, etc.
- During subject-specific classroom training, it is essential to emphasize discussions on safety cases, including SPAD, accidents, derailments, collisions, side collisions, and incidents involving entering unwired/sand humps. This emphasis should highlight how adherence to proper procedures or correct actions by the LP/ALP on the subject could have effectively prevented such cases.

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